COMPETITIVENESS ANALYSIS OF CROSSBREED INDIGENOUS CHICKEN COMMODITY IN MALANG REGENCY

UNDERGRADUATE THESIS

By :
Muhammad Helmi
NIM. 145050100111042

ANIMAL SCIENCE STUDY PROGRAM
FACULTY OF ANIMAL SCIENCE
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Undergraduate thesis as one of the requirements for
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BIOGRAPHY

The author was born in Malang, June 17, 1995, as the second son of Mr. Abuyono and Mrs. Nur Aida. The author has a step sister named Lilik Rosyda, a stepbrother named Muhammad Alfan, an older sister named Eliya Belqis, and a sister named Farah Alhamidah. In 2008, the author graduated from SDN Putukrejo as the highest NEM acquirer. Then in 2011 graduated from SMPN 1 Gondanglegi, and in 2014 graduated from SMAN 1 Gondanglegi, while in senior high school writer was Chief of English Club (2012), chairman of OSIS (2013) and chairman of MPK (2014). In 2014, the writer studied at Universitas Brawijaya through national writing test (SBMPTN) and received Bidikmisi scholarship by DIKTI. The author enters English Class at the Faculty of Animal Husbandry, UB in 2015.

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The authors hope this undergraduate thesis will give benefit all parties and can contribute to society.

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Author,

ANALISIS DAYA SAING KOMODITAS AYAM KAMPUNG *CROSSBREED* DI KABUPATEN MALANG

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ABSTRAK

Tujuan dari penelitian ini adalah untuk mengetahui daya saing dari komoditas *crossbreed* ayam kampung di Kabupaten Malang dalam bentuk keuntungan kompetitif dan keuntungan keuntungan komparatif (harga privat/harga sosial). Data dianalisa menggunakan metoda survey dan deskriptif kualitatif menggunakan *Policy Analysis Matrix* (PAM) dengan indikatornya. Hasil dari penelitian ini menunjukkan keuntungan privat/*Private Profitability* (PP) yang dihasilkan peternakan ayam Jawa asli adalah Rp. 7.734,31,- per ekor dan keuntungan sosial/*Social Profitability* (SP) sebesar Rp. 9.094,57,- per ekor. Sedangkan peternakan ayam Jawa super memiliki keuntungan privat/PP Rp. 9.707,44,- per ekor dan keuntungan sosial/SP sebesar Rp. 10.937,05,- per ekor. Berdasarkan hasil analisis daya saing, komoditas ayam kampung di Kabupaten Malang menunjukkan memiliki keuntungan kompetitif dan komparatif. Hal ini ditunjukkan dengan hasil *Profit Cost Ratio* (PCR) dan *Domestic Resource Cost Ratio* (DRCR) masing – masing sebesar 0,44; 0,40 (ayam kampung Jawa asli) dan 0,35; 0,33 (ayam kampung Jawa super). Dari hasil penelitian dapat disimpulkan bahwa komodiatas ayam kampung di Kabupaten Malang memiliki daya saing dan ayam Jawa super memiliki

efektifitas lebih baik dibanding ayam Jawa asli. Peternak ayam kampung untuk lebih meningkatkan kualitas dan kuantitas produk agar meningkatkan efektifitas dan daya saing yang sudah dimiliki.

Kata kunci: *Crossbreed Ayam kampung, daya saing, Policy Analysis Matrix (PAM)*

COMPETITIVENESS ANALYSIS OF CROSSBREED INDIGENOUS CHICKEN COMMODITY IN MALANG REGENCY

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SUMMARY

The growth of population in Indonesia was increasing year by year, and it followed with better income, level of education, life necessity, and more fulfillment of animal protein requirements. Problems that arise, this demand can not be met by domestic production so that forced to import to meet it. Therefore, it needs a solution to be able to meet the needs by developing the potential commodity local owned by the nation that is indigenous chicken. Indigenous chickens have the potential to be developed. It has the advantages of the high consumer preference, the price of meat and eggs are expensive and relatively stable. Although indigenous chicken production still needs to be improved again to produce more, fewer input costs and have bargaining power and has competitiveness.

The purposes of this study were to determine the competitiveness of crossbreed indigenous chicken commodities in Malang Regency based on competitive advantages and comparative advantage (private price/social price). The type of data used were the amount of production, production costs, total revenue by indigenous chicken farmers. Also, price comparison and justification use secondary data taken from source sharing. This research method was the survey and descriptive qualitative

using Policy Analysis Matrix (PAM) and it's indicator as a benchmark of the influence of government policy on commodities discussed. The sample of the research was determined by purposive and analyzing using six respondents who had population chicken among 500 – 3,000 bird either farmer of the native Javanese type and the super Javanese type.

The results of this study indicated the private profit /Private Profitability (PP) generated by the native Javanese indigenous chicken farm was 7,734.31 IDR/bird and social profit/Social Profitability (SP) with 9,094.57 IDR/bird, for Super Javanese indigenous chicken farm had a private profit/PP of 9,707.44 IDR/bird and social profit/SP of 10,937.05 IDR/bird. Based on the results of competitiveness analysis, indigenous chicken commodities in Malang Regency shown the competitive advantages and comparative advantages. This was proved with calue of PCR and DRCR respectively 0.44; 0.40 (native Javanese type) and 0.35; 0.33 (super Javanese type).

While the impact of the government's policy, that already implemented in 2009 is Value Added Tax (VAT) 10% (ten percent) rate for sales goods. Including; feeds, vitamins, and medicines for the indigenous chickens under the provisions of the Constitution No.42 of 2009 article 7 was still not able to support chicken farmer by result the value of PAM. The impact of government policies analyzed through the PAM matrix was policy on output, inputs, and both. The policy indicators on input are obtained from the value of Transfer Input (TI), Factor Transfer (FT), and Nominal Protection Coefficient Input (NPCI). Policy on output can be seen from Transfer Output (TO) and Nominal Protection Coefficient Output (NPCO). Government policy on input-output can be seen on the value of Effective Protection Coefficient (EPC), Net Transfer (NT), Profit Coefficient (PC), and Producer Subsidy Ratio (SRP).

Transfer Output (TO) value is 0 IDR (TO = 0 IDR), it means that on the breeding of native Javanese indigenous chicken and super Javanese indigenous chicken have the same

number. The data shows that there is no distortion value of private prices and social prices and government policy. It also shows that the transfer of output from consumer to producer is 0 IDR/bird. The Effective Protection Coefficient (EPC) value in this research showed the negative result that is 0.91 (native Javanese indigenous chicken) and 0.92 (super Javanese indigenous chicken) (EPC <1). So it indicates that the policies enacted by the government still can not protect domestic producers and efficiently run. It can illustrate that the policy has not protected local farmers and spur production because they have not obtained protection facilities from the government because the social costs are higher than their private costs. The Producer Subsidy Ratio (SRP) value of native Javanese indigenous chicken is -0.04 and super Javanese indigenous chicken is -0.04, (SRP <0). In other words, government policy about 10% VAT has a negative impact on the indigenous chicken farmer, because the farmer incurs greater production cost ± 0.04 % of the opportunity cost to produce.

Based on the results of this study it could be concluded that the commodities of indigenous chicken in Malang Regency have the competitiveness. The super Javanese indigenous chicken had better effectiveness than the native Javanese indigenous chicken. Indigenous chicken farmer in Malang Regency can improve their profit and competitiveness by joining in active extension programs to improve farmers' capabilities, knowledge, and increase their product quality and quantity.

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LIST OF ABBREVIATION

ABBREVATION

% : Percentage
CIF : Cost Insurance Freight
CMSA : Constant Market Share Analysis
dkk., : *dan kawan – kawan*
DOC : Day Old Chick
DRCR : Domestic Resource Cost Ratio
EPC : Effective Protection Ceofficient
EPD : Export Product Dynamics
et al., : *et alii*
FAO : Food and Agriculture Organization
FOB : Free On Board
FT : Factor Transfer
GR : Genetik Resources
IDR : Indonesian Rupiah
ILO : International Labour Organization
kg : Kilogram
NJIC : Native Javanese Indigenous Chicken
NPC : Nominal Protection Coefficient
NPCI : Nominal Protection Coefficient on Tradable Input
NPCO : Nominal Protection Coefficient on Tradable Output
NT : Net Transfer
PAM : Policy Analysis Matrixt
PC : Profitability Ceofficient
PCR : Profit Cost Ratio
PP : Private Profitability
RCA : Revealed Competitive Advantages
SER : Shadow Exchange Rate
SJIC : Super Javanese Indigenous Chicken

SNI : *Standar Nasional Indonesia*
SP : Social Profitability
SRP : Subsidy Ratio to Product
TC : Total Cost
TI : Transfer Input
TO : Transfer Output
TR : Total Revenue
TSP : Trade Specialization Indeks
USD : United States Dollar
VAT : Value Added Tax

CHAPTER I
INTRODUCTION

1.1. Background

The rate of population growth in Indonesia continues to increase from year to year. According to Directorate of Food and Agriculture (2015), along with the increase of population will be accompanied by the increase of income, the need for fulfillment of education and consumption pattern of society that leads to food products that more qualified, nutritious, safety and prestigious. Department of Data and Information Systems Agriculture Secretariat General of the Ministry of Agriculture (2015) stated that in 2016 - 2019, the demand of chicken meat consumption tends to increase by an average of 1.56% per year around 4.69 kg/capita/years. So the total requirement of chicken meat for direct consumption in 2016 is estimated at 1.19 million tons and 2017 from 1.24 million tons, by 2018 from 1.27 million tons and by 2019 reaching 1.30 million tons. Consumer awareness changes and consumer demand for nutritious and quality products drive demand and fulfillment of marketed products, especially livestock products, to fulfill the needs of animal protein such as meat.

The problem that arises is the increasing demand for meat has not yet fulfilled by the local livestock production. According to Nurhayati, Waryanto, Noviyati, and Wiandingsih (2015), that in 2016 beef production is projected for 2017 – 2019 increase from 583.14 thousand tons to 666.69 thousand tons. With average annual growth rate, only 4.05% - 4.67%, the amount of meat production is still low and need another alternative way to sufficient needs in the market. One solution that can be implemented is the development of potential local

commodities that are expected to be an alternative in fulfilling these needs.

Indigenous chicken is local livestock in Indonesia that has the potential to be used as an alternative to meet the needs of animal protein. According to Gozali (2010), indigenous chicken has an essential role as a source of protein food, for saving money, and pet. Indigenous chickens are also useful as valuable genetic resources. In many places, Indigenous chicken is one of the complements in traditional and religious ceremonies. According to Resnawati (2012), the advantages of indigenous chicken is the high consumer preference for its meat and eggs because all levels of society can consume it, the price of meat and egg is relatively stable and expensive, easy for marketing, and excellent adaptability to various environmental conditions.

The productivity of indigenous chicken still needs to be improved. Based on the data of Department of Animal Husbandry, East Java Province (2017) indigenous chicken production has decreased from 2014 to 2016, from 37,199,456 kg to 31,566,818 kg. According to Haryono, Tiesnamurti, and Hidayat (2012), as genetic resources (GR) native to Indonesia, local chickens can be developed to support the independence of the provision of food sources of animal protein nationwide. Government Regulation No. 68 of 2002 on food security which emphasizes the importance of self-reliance in the provision of food based on local resources stated that. Market demand for this commodity is quite stable, according to FAO (2008), production and trade of poultry in which includes the indigenous chicken are experiencing consistent growth. According to Kotler (2002), several factors that influence consumers to buy products are cultural, social, personal and

psychological as well as the value gained after buying the product.

Competitiveness is the ability of producers to producing a commodity with good quality and low cost by international market prices, and it can be marketed at enough price to continue the production activities. According to Daryanto (2009), commodities that have a comparative advantage also have economic efficiency. The Revealed Competitive Advantages (RCA) is a measure of the competitiveness of activity under actual economic conditions. Associated with the concept of comparative advantages is economic feasibility, and related to competitive advantages is the financial feasibility of an activity.

Malang Regency is an area that contributes to the amount of indigenous chicken production in East Jawa Province. Based on data of Department of Animal Husbandry, East Java Province (2017) indigenous chicken production in Malang for 2014 to 2016 is decrease from 3,509,738 kg to 2,856,992 kg, but that number is quite large compared to other regions. According to Simatupang and Hadi (2004), Indonesian livestock products will also compete with similar products of foreign origin, especially meat and milk. If this is the case, Indonesian farmer must have an increasingly strong of competitiveness, especially in the face of competition with similar products of foreign origin. Based on the description, it is necessary to conduct research to identify the competitiveness owned on indigenous chicken commodity based on comparative advantages and competitive advantages in Malang Regency, East Java Province.

1.2. Problems

The problems studied in this research are:

1. How is the competitiveness of indigenous chicken commodity regarding competitive advantages in Malang Regency, East Java Province?
2. How is the competitiveness of indigenous chicken commodity regarding comparative advantages in Malang Regency, East Java Province?

1.3. Purposes

The purposes of this research are:

1. To analyze the competitiveness of indigenous chicken commodity regarding competitive advantages in Malang Regency, East Java Province.
2. To analyze the competitiveness of indigenous chicken commodity regarding comparative advantages in Malang Regency, East Java Province.

1.4. Advantages

The advantages of this research are:

1. This research is expected to be a source of information and innovative contributions for animal science students, as well as government authorities in the field of livestock and agriculture to improve the competitiveness of indigenous chickens.
2. Provide information to farmers and private sector engaged in indigenous chicken to improve the performance and business competitiveness.

1.5. Research Framework

The strategic policy of the government as stipulated in the Strategic Plan (Renstra) of the Ministry of Agriculture 2015-2019. It stated that indigenous chicken is one of the eight livestock commodities that would develop to meet the needs of meat and to meet the needs of protein animal origin to the national food sovereignty (Ministry of Agriculture RI, 2014). According to Andang, Isnaini, and Trisunuwati, (2012), indigenous chicken has a considerable role in Indonesian people's lives, especially in rural areas used as a source of meat, eggs and as an additional income. Maintenance of Indigenous chicken has several advantages compared to the broiler, which tends to be stronger against certain diseases, it has high adaptability to the environment and maintenance is relatively easy. The products of indigenous chicken such as eggs and meat have unique features and are difficult to replace by other commodities.

According to Yaman (2011), the existence of indigenous chicken in the community as a source of protein, both as a producer of eggs and meat. Improving its potency as the source of meat will increase the economic value and competitiveness of indigenous chicken. On the other hand, Sajutil (2001) stated that indigenous chicken has some susceptibility among others, that is relatively slow body weight growth, relatively low egg production compared to the broiler, high of the rate of food conversion and mortality. On the other hand, public demand for chicken products is relatively high.

According to Dewanti and Sihombing (2012), production costs incurred the acceptance of indigenous chicken farmers can analyze using production costs incurred. Including fixed costs (the cost of depreciation of the cage, the cost of

depreciation of equipment, the cost of electricity, and labor costs) and the variable cost such as purchasing chicken, feed costs, and the cost of vitamins/ medicine. Comparison between input process and output process on chicken production is essential to be known the effectiveness and superiority owned by farmers. According to Bahari, Fanani, and Nugroho (2012), the income analysis has a usefulness that is in addition to measuring whether the business activities of farmers currently prosperous and it can provide a picture for planning and further action of current income. In addition Nurtini, Widodo, Santosa, and Masyhuri (2005), the financial profit and competitive advantages reflected in the value of the Private Cost Ratio (PCR) in addition to the social profit and value of the Domestic Resource Cost Ratio (DRCR) reflecting comparative advantages. Social profit is an indicator of the level of profit relative because in the calculation using social prices; it is a price that reflects the value of scarcity (social opportunity cost). Social value is a value that will occur in a state without any distortion or policies that will affect the value; this condition will occur in perfect competition market.

This research used the concept of Policy Analysis Matrix (PAM) developed by Monke and Pearson (1989), augmented by a recent development in the price distortion analysis by Masters and Winter-Nelson (1995), which accounts for the valuation of non-traded inputs. The PAM framework involves the derivation of several important indicators of competitive and comparative advantages. The PAM is a product of two accounting identities. The first one defines profit as the difference between revenues and costs, measured in either private or social terms. The second identity measures the effects of distortions (distorting policies and market failures) as the

difference between observed values and social values as indicated by the divergences raw in the PAM. These divergences are approximations because social values evaluated at the initial distorted levels of outputs and inputs. Hence, the PAM guides incremental changes rather than commercial ones (Fang and Beghin, 2000). The PAM which evaluates policies in an environment where there would be no distortions and all markets would clear. The PAM consider the actual environment, with the distortions and market imperfections that characterize it, and simulate policy alternatives within this context or within a context modified by specific policy interventions, without engaging in global first best policy exercises (Sadoulet and Janvry, 1995)

The competitiveness level of a commodity determined by the value of competitive advantages and comparative advantages of the commodity (Asmara and Artdiyasa, 2008). According to Malian, Rachman, and Djulin (2004), the Private Cost Ratio (PCR) is a private profitability indicator, which shows the ability of a commodity to pay domestic costs and remain competitive. A commodity is called competitive if the PCR value <1. The smaller value of PCR means that the more competitive the commodity is. The Domestic Resource Cost (DRC) is an indicator of comparative advantages, which shows some domestic resources that can be saved to generate one unit of foreign exchange. The commodity has a comparative advantage if DRC <1. The smaller the DRC value, the more efficient the commodity is. The agricultural products that have high competitiveness will be able to exist and continue to grow. Increased competitiveness will then be able to encourage the farmer to increase the productivity, increasing farmer income, employment opportunities and foreign exchange (Hadi and

Mardianto, 2004). Based on the description, the conceptual framework of research can summarize by the chart shown in Figure 1.

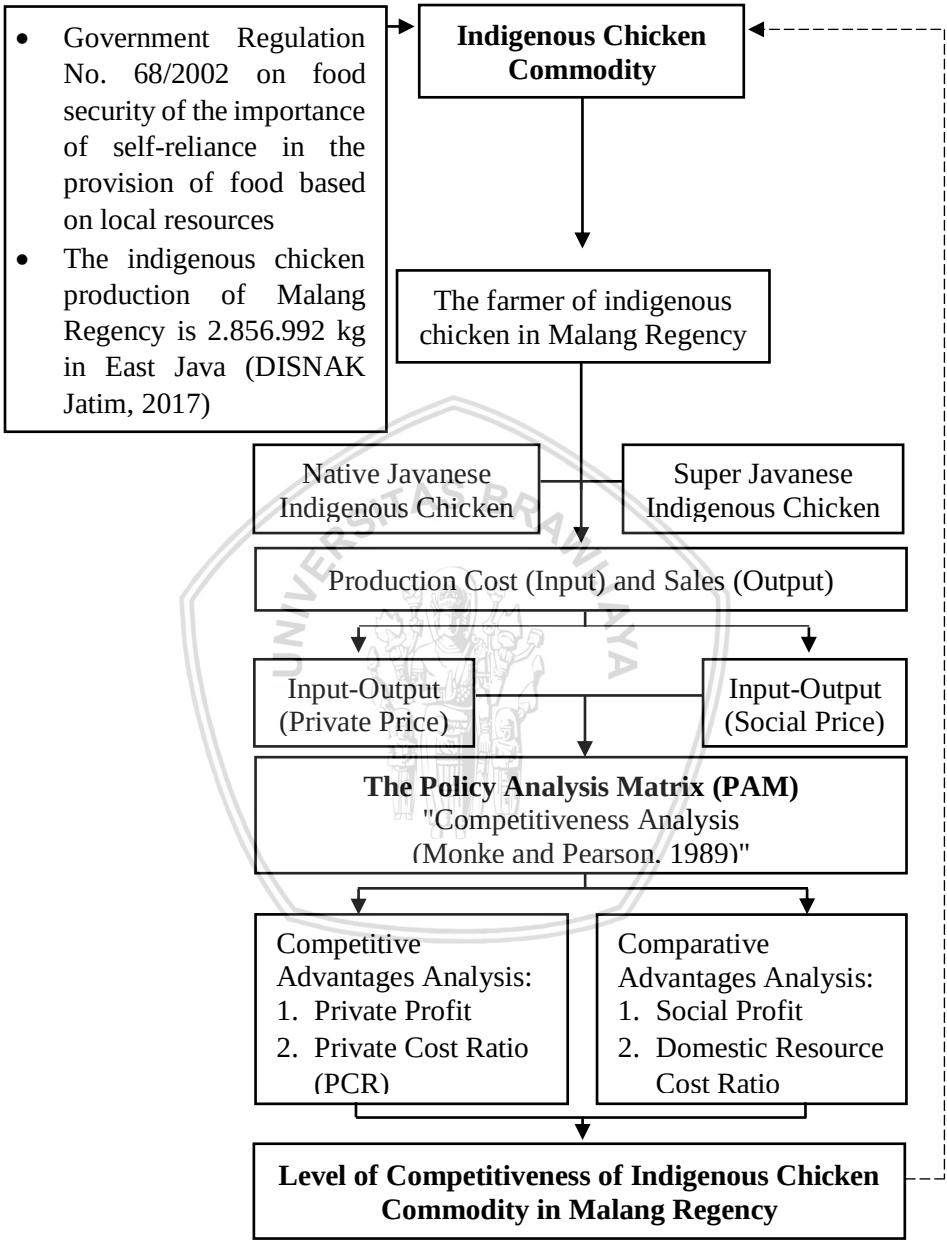

Figure 1. Research Framework

CHAPTER II
LITERATURE REVIEW

2.1. Previous Research

This research based on research that has been conducted by previous researchers. Irawadi (2007) conducted a mangosteen competitiveness study with a case in Guguk District, West Sumatra Province. The method used is PAM which is useful to know economic efficiency and financial efficiency with a value of private cost ratio (PCR) and the ratio of the domestic resource (DCR). The results of mangosteen farming in Guguk sub-district have a competitive advantage (efficient in private) and comparative advantage (socially efficient). The result of the margin analysis shows that the most efficient trading channel is the third line and the farmer's share is 22.22 percent.

A similar concept was also applied by Mudjayani (2008) with a study entitled "Indonesia Tropical Fruit Competitiveness Analysis." The results show that based on the analysis of competitive advantages (Porter's Diamond) by analyzing external conditions and internal conditions, Indonesian tropical fruits (mangosteen, pineapple, papaya, banana) have a competitive advantage. Based on the analysis of comparative advantages (Revealed Comparative Analysis) from RCA value calculation, Indonesian tropical fruits have comparative advantages seen from RCA value (RCA> 1) Indonesian tropical fruits have strong competitiveness. Factors affecting the competitiveness of Indonesia's tropical fruits are productivity that positively affects competitiveness, an export value which positively affects competitiveness, export prices negatively affecting competitiveness, and dummy crisis which

negatively affects competitiveness. In addition to the dummy variable of the crisis, all regression variables significantly influence at a real level of 10 percent.

Similar research has Conducted by the Aedah, Djoefrie, and Suprayitno (2016) entitled "Factors Affecting the Competitiveness of Indigenous Chicken Industry (Case Study of PT. Dwi and Rachmat Farm, Bogor)" but using a different method of research that is a descriptive method, processed and analyzed using Diamond Porter Model. The result of the research showed the factors that influence the competitiveness of chicken poultry industry was as follows; human resources, the number of buyers and the growth rate of the buyer, the nursery business, the replacement product industry, the roadmap and the business plan of chicken development, conducive business climate. The lowest attributes are infrastructure, capital resources, supplier industry integration and export facilitation.

The competitiveness research also already search for broiler commodity by Saptana and Rusastra (2015) entitled "Impact of Monetary Crisis and Government Policy on Agribusiness Competitiveness of Broiler in West Java Province." The result of that research is the main problem faced by broiler industry. As follows: (1) Most of the feedstuff are highly dependent on import; (2) The structure of input and output market are oligopolistic; (3) Cooperative farming do not consistently implement; and (4) The price of input factor increased threefold due to the monetary and economic crisis. Based on those backgrounds, the objective of this study is to analyze the impact of government policy on financial and economic feasibilities of broiler agribusiness. The finding of the respective study conducted in two districts (Bogor and

Tasikmalaya). It indicated result as follows: (1) Because of economic crisis, financial and economic profitability of broiler industry decreases; (2) Private Cost Ratio (PCR) increased from 0.753 – 0.873 to 0.851 – 0.989 due to crisis, indicating lower financial competitiveness; (3) The value of DRCR before and after crisis are 0.727 – 0.976 vs. 0.790 vs. 0.917 which reveal lower economic competitiveness; and (4) The value of Nominal Protection Coefficient (NPC) during the economic crisis showed that broiler industry experiencing disincentive for both input and output market. The implication of this study in relation to the development of broiler industry facing the economic globalization were as follows: (1) The vertical integration and cooperation between smallholder broiler farming and input/output industry should be strengthening in a synergistic manner; (2) In order to generate foreign exchange and higher value-added through export and product development as well as product differentiation, all agribusiness subsystem in broiler industry should implement vertical integration; and (3) The establishment of cooperative broiler farming system should conduct in the region of potential market and feedstuff producing regions.

2.2. Competitiveness

Some experts argue that the concept of competitiveness based on the concept of comparative advantages which is an economic concept. However, some other experts argue that the concept of competitiveness or competitive advantages not be an economic concept, but rather a political concept and or business concept that is used as the basis for many strategic analyzes to improve company performance (Daryanto, 2009). According to Simatupang (1991) and Sudaryanto and Simatupang (1993), the

concept of comparative advantages is a measure of potential competitiveness regarding competitiveness to be achieved if the economy did not distort at all. A commodity that has a comparative advantage is also said to have economic efficiency. The Revealed Competitive Advantages (RCA) is a measure of the competitiveness of activity under actual economic conditions. Associated with the concept of comparative advantages is economic feasibility, and related to competitive advantages is the financial feasibility of an activity. Sources of distortion that can disrupt the level of competitiveness include (1) government policy (government policy), either directly (such as tariffs) or indirect (such as regulations); and (2) market distortions, due to market imperfection, such as domestic monopoly/monopsony.

An essential component in improving national competitiveness is the export component. Increased exports are not only done from the production side to increase the volume alone but more important is the increase in competitiveness. Therefore it is essential to encourage the export of products where Indonesia has its comparative advantages. With various factors of production owned by Indonesia, the agricultural sector is one of the sectors that have comparative advantages compared to other countries (Asmara and Artdiyasa, 2008).

The mathematical approach used to measure the competitiveness of a commodity. It could do with several concepts, such as Revealed Comparative Advantages (RCA), Trade Specialization Index (TSP), Export Product Dynamics (EPD), Constant Market Share Analysis (CMSA) and Policy Analysis Matrix (PAM) (Hasibuan, Nurmalina, and Wahyudi, 2012). The Policy Analysis Matrix (PAM) concept is a commonly applied approach for analyzing feasibility both

privately and socially. With this approach, competitive advantages (financial efficiency) and comparative advantages (economic efficiency), and the impact of government intervention or policy on commodity systems. Basically competitiveness analysis required principal data with the following processes: (1) the physical input-output data of the commodity farms studied, (2) the financial price and the input-output economy of the farm, (3) the separation of domestic and foreign components from inputs, (4) calculation of critical components of the policy matrix analysis, and (5) calculation of indicators of analysis results including profit analysis, financial and economic efficiency and impact of government policy on farm level (farm gate level) (Zakaria, Sejati, and Kustiari, 2010).

2.3. Indigenous Chicken Commodity

The population of indigenous or local chicken has spread throughout the country, and its existence is closely related to the existence of the rural population. Local chicken is also one of Indonesia's biological riches that have long been developed to adapt to the natural environment of the countryside. Chickens farmed by small farmers aim at saving to obtain cash when needed, as an investment and also as insurance for the family. Maintenance of local chickens can also create jobs for farmers (Setioko and Iskandar, 2015). Indigenous chickens had genetic potential, according to Sartika, Iskandar, Prasetyo, Takahashi, and Mitsuru, (2004), the indigenous chicken has a higher number of alleles, which identifies that local breeds still have a high genetic variability, so to establish a breed of local chickens is still needed further selection.

The development of indigenous chickens in Indonesia should aim at increasing the scale of ownership and improvement of rearing techniques by altering the pattern of maintenance from the extensive traditional to intensive commercial efforts to increase farmers' income and employment. The development effort is also expected to stimulate the economy and at the same time increase the income of the community, especially in rural areas, because Indonesia has sufficient natural resources to create superior seeds, feed ingredients and medicines needed in the modern, intensive and efficient chicken breeding industry (Nataamijaya, 2010).

According to study on the prospect of agribusiness of indigenous as the basis for the development of the rural economy by Sayuti (2002), the indigenous chicken farming can become the source of employment and income for the rural community. Even though indigenous chicken farming businesses have relatively lower commercial, industrial properties than commercial chicken, its production has higher economic value.

2.4. The Meat of Indigenous Chicken Commodity

According to SNI (2011), chicken carcass is part of the chicken body after halal slaughtering according to CAC / GL 24-1997, removal of feather and discharge of innards, without head, neck, feet, lungs, and or kidney can be fresh carcass, freshly chilled carcass, or frozen carcass.

Table 1. Requirements for Physical Quality Level of Carcass

No.	Quality Factor	Level of Quality		
		Quality I	Quality II	Quality III
1.	Confirmation	Perfect	There are slight abnormalities in the breastbone or thighs	There are disorders in the breastbone and thighs
2.	Meat confirmation	Thick	Medium	Thin
3.	Fat confirmation	Many	Many	Few
4.	Wholeness	Intact	Bone intact, skin tear slightly, but not on the chest	Bone intact, skin tear slightly, but not on the chest there is a broken, wingtip apart there is a skin that torn in the chest
5.	Discoloration	Free of bruises or "freezer burn."	There is a slight bruise but not on the chest and not "freezer burn."	There is a slight bruise but no "freezer burn."
6.	Cleanliness	Free from feather shoots (feather pins)	Few shots spread, but not on the chest	There are fur shoots

Source: SNI (2009)

Table 1 shows the quality requirement of indigenous chicken carcass quality meat that must meet in the hope of increasing the selling value and the quality of meat produced by the farmers. Based on the results of interviews with six farmers of chicken farmers as samples showed the results that farmers do not know at all with the standard of SNI because in their daily farmer activity after the indigenous chicken is old enough to be harvested. They direct sell the chicken based on the weight of life to the middleman or chicken butcher, but sometimes some consumers directly ask for slaughter and buy the product.

Extension program related to the handling and production process should be done to the indigenous chicken farmers so that the products produced by the standards applied and can boost the selling value of the products. According to Iskandar (2006) stated the indigenous chicken farmer using the traditional way to produce their chicken. However, their condition is only as a keeper with ownership of several birds that extensive in the yard and gardens around the house. The Community contribution as above is significant in the development of local chickens nationally, especially in the aspect of conservation and spread of livestock directly or indirectly, through the process of buying and selling between the keepers and traveling traders. People who choose on a business scale still exist, although this seems to be diminishing as a result of rising feed prices that are not comparable with the price of local meat and chicken products. Therefore it is necessary to conduct extension and breakthroughs to utilize the material feed of the site-specific become necessary.

It is unfortunate that the indigenous chicken farmers do not realize that the indigenous chicken has the potential with high nutrient content (more detailed presented in Table 2) with

the position of products that are always in demand by the broader community.

Table 2. Nutrient Content of Indigenous Chicken Meat

Nutrient Content (%)	Total (%)
Water content	53.04
Crude protein	22.17
Treonina	1.96
Tyrosine	1.66
Methionine	1.62
Valina	2.43
Fenilalanina	1.96
Isoleucine	2.62
Leusina	3.75
Lisina	3.96

Source: Pane (2006)

2.5. Production Cost of Indigenous Chicken

The local chicken's farmer and their products are potentially strategic commodities and have promising opportunities both economically and socially, so the need for more intensive handling and development. The price of poultry feed raw materials (mostly imports) will determine the cost of production, mostly the local feed raw materials derived from the follow-up of rural agro-industries with low quality and low digestibility (Zainuddin, 2015).

The cost components calculated and analyzed on poultry meat farming include fixed cost and variable cost. Fixed costs in the business of poultry meat farms include; the cost of Land Building Tax (PBB), lease land, rent cage, shrinkage of cages and equipment, while variable costs include; the cost of production means, labor cost, and electricity cost. The fixed

costs incurred by the breeders include the cost of land rent, fixed wage, depreciation, and other expenses. Depreciation divided into depreciation of buildings and equipment. Non-fixed costs or variable costs are costs that vary with or in line with the size of production activities. Variable costs in the broiler business include the cost of Day Old Chick (DOC), feed, medicines, and operations (labor, electricity, water, husk, and LPG gas). The supplier sets the cost of DOC, feed, and medicines at the beginning of the maintenance period (Zentiko, Handayani, and Santoso, 2015).

2.6. Efficiency Concept

The determination of national and regional superior commodities is the first step towards the development of agriculture based on the concept of efficiency to achieve comparative and competitive advantages in the face of globalization trade. The efficiency could achieve by developing commodities that have a comparative advantage regarding both supply and demand. Efficiency supply characterized using its superiority in its growth in the biophysical condition, technology and socio-economic conditions of farmers in a region (Hendayana, 2003).

The concept of efficiency is to analyze and calculate the level of input and output efficiency of livestock business (Tugiyanto, Priyono, and Mudawaroch, 2013). Technical efficiency analyzes the relationship between input and output. Technical efficiency can occur in the presence of a production process that can utilize little input to produce the same amount of output. The economic efficiency is the ratio between the selling price of the product and the total cost of production (TC) used. Poultry farming business can be said to be more

economically efficient if the broiler farming business has a higher product selling price than the total revenue (TR). The principle of economic efficiency is to minimize production costs to produce output. The price efficiency shows the relationship between cost and output. Price efficiency achieved if the company can maximize the profits of equating the value of the marginal product of each factor of production with the price (Pradita, Sarengat, and Handayani, 2015).

2.7. Competitive Advantages

According to Yuzaria and Suryadi (2011)**,** that the indicator of competitive advantages is Private Cost Ratio (PCR), it reflects on how farm business systems can pay for domestic factor inputs (land rent, labor wage, and capital interest) and remain competitive. It supported by Ramli and Swastika (2005) stated that developing the level of competition the commodity could be approached from two sides, that is in the production level and the price level. Analysis of the competitive advantages of production and price will give an idea of the minimum level of production, or the minimum price of a commodity can give a competitive advantage to its competitor's commodity. The analysis of competitive advantages can be used to determine the opportunity cost of farm capital invested in various farming activities.

2.8. Comparative Advantages

Based on the explanation of Tambunan (2004) stated the theory of comparative excellence arises from the ideas of John S. Mill and David Ricardo that the exposure of a country possessed comparative advantages, it could be an indicator of the superiority. Based on John S. Mill's thinking, a country will

export products that have the highest comparative advantages and import products if they have a low comparative advantage. Also, David Ricardo has the idea that a country's trade will occur if each country has the lowest production cost (the most significant labor productivity) for each different type of goods. Hence it can be concluded that David Ricardo's emphasis lies in the efficiency or productivity relative between countries having in producing two or more goods based on the Internasional trade. The concept of comparative advantages is a measure of competitiveness in the actual economy. The analysis used economic analysis using the shadow price.

The producer uses domestic resources and foreign materials from abroad continuously in the production process. The analysis of Domestic Resource Cost (DRC) is used to find out whether or not the use of domestic resources in the production process. DRC is the ratio between the input costs of domestic factors and the added value of outputs from tradable input costs assessed at social prices. The value of DRC is an indicator of the ability of farmers (local and imported) to finance the cost of its domestic factor inputs at social prices or otherwise known as an indicator of comparative advantages (Yuzaria and Suryadi, 2011).

2.9. Policy Analysis Matrix (PAM)

According to Pearson, Gotsch, and Bahri (2003), in their efforts to raise agricultural productivity, the central, provincial, and local governments in Indonesia can intervene in agriculture by using three different kinds of policies agricultural price policies, public investment policies, and macroeconomic policies. Macroeconomic policies can only be imposed at the central level and require separate analysis by specialists in

macroeconomics. Agricultural economists study the impacts of price and investment policies. Fortunately, the efficacy of both agricultural price policies and public investments in agriculture could study using one approach, that was the Policy Analysis Matrix (PAM). PAM results show the individual and collective effects of price and factor policies. The PAM also provides essential baseline information for benefit-cost analysis of agricultural investment projects. The primary purpose of this chapter is to show how and why the PAM method can apply to both price and project analysis.

The PAM methodology provides information to help central and regional policymakers address three central issues of agricultural policy analysis. One issue is whether agricultural systems are competitive under existing technologies and prices that is, whether farmers, traders, and processors earn profits facing actual market prices. Prospective price policies would change the value of output or the costs of inputs and thus the private profitability of the system. Comparison of private profitability before and after the policy change measures the impact of the policy change on competitiveness in market prices (Pearson *et al*., 2003).

2.9.1. Private Profitability

Private Profitability is a competitiveness indicator of commodity system based on technology, output value, input cost and policy transfer (Pearson, Gotsch, and Bahri, 2005).

2.9.2. Social Profitability

Social Profitability or social profit is an efficiency indicator of system commodity on condition there is no divergence and policy implementation (Pearson *et al*., 2005).

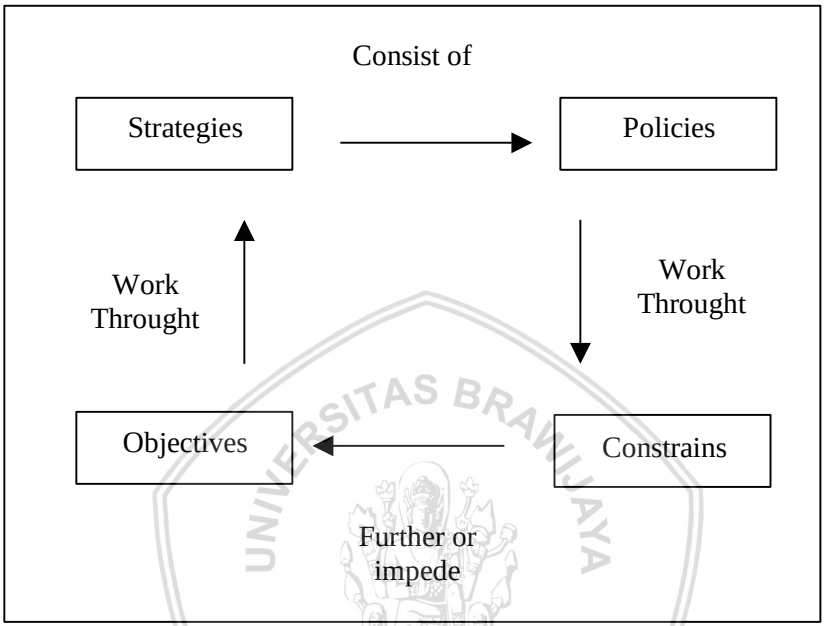

Figure 2. Graphic Representation of a Policy Framework (Pearson *et al*., 2003)

2.10. Tradable Goods and Non-Tradable Goods

2.10.1. Tradable Goods

The material or equipment used in the project is a traded item, the cost of which is the price of the Border Price of the material or the apparatus means Cost Insurance Freight (CIF) commodity for imported goods, or Free On Board (FOB) for the goods that can be exported (Kadariah, 2001). The traded goods mean:

a. Exports Goods
   1. If Free on Board (FOB) price is higher than the cost of domestic production, or

2. Exported goods with government interference, with export subsidy or something similar.

b. Imported Goods

If the cost of domestic production is higher than the price of Cost Insurance Freight (CIF).

2.10.2. Non-Tradable Goods

Non-tradable goods are at a higher CIF price than domestic production costs, and domestic production costs are higher than FOBs and non-tradable items due to government interference in the form of import restrictions, quotas and similar (Kadariah, 2001).

2.11. Shadow Price

The measuring of shadow price uses the method such as Gittinger (1976 and 1986). Determining the shadow price issued using distortions due to government policy or due to market failure. In this study to determine the social price of traded commodity approached with a border price. For a commodity that has exported used Free On Board (FOB) price and for the imported commodity used Cost Insurance Freight (CIF) price. The PAM analysis aimed at analyzing comparative and competitive advantages up to the wholesale level; it was necessary to make some adjustments. For FOB prices, as it was a limit price in export ports, it is necessary to reduce the transportation and to handling from wholesalers to ports. Meanwhile, for CIF price, because it is the limit price in the import port, it is necessary to add the transportation cost and to handling from port to wholesaler (Saptana and Rusastra, 2015).

CHAPTER III
RESEARCH MATERIAL AND METHODS

3.1. Research Location and Time

This research conducted in indigenous chicken farms location around Malang Regency, East Java Province in November to December 2017. Malang Regency was chosen as research location by purposive and some considerations, as follows: Malang regency had the potential of developing local chicken, and the production of domestic poultry was as much as 2,856,992 kg (Department of Animal Husbandry, East Java Province, 2017), and Malang Regency was the area for developing of indigenous chicken, most of the breeds have spread in this area (ILO, 2014).

3.2. Research Methods

The method used in this research is descriptive analysis, survey, and quantitative approach. The descriptive analysis and survey method used to analyze the data available and processed, so that obtained a clear picture of the facts and the relationship between phenomena studied. This method performed by sampling on indigenous chicken farmers located in Malang regency using observation method that is the interview with the respondent with the questions form. Determination of respondents using purposive sampling is intentionally by the needs of research.

The research respondents were six chicken farmers with a population of 500 - 3,000 bird consisting of native Javanese indigenous chicken farmers and super Javanese indigenous chicken farmers. The data collected consists of primary and secondary data. Primary data obtained from

observation and interview with the farmer by using questioner and interview to the chicken farmer. Secondary data obtained from relevant resources and literature related to this study.

A quantitative approach is needed by analyzing secondary data from various sources as follows Central Bureau of Statistics, Indonesia Bank, secondary data obtained from annual reports of the broiler farm industry. The data in this research includes input and output costs production; the data will analyze using Policy Analysis Matrix (PAM) cost table. According to Munandar (2004), the purpose of the quantitative approach is to test the theory for constructing facts. Showing relationships among variables, providing statistical descriptions, estimating and forecasting results.

3.3. Analysis Methods

3.3.1. Estimation Variable

This research used PAM analysis based on competitive advantages and comparative advantages, in this study, it applies some variables that can be considered necessary to be processed and analyzed as follows:

1. Production Cost (Private Price) cost incurred by the farmer in the above sector:
    a. The cost of tradable inputs, namely the sale of chicken meat
    b. The non-tradable input costs, i.e., labor, cage depreciation, depreciation of transportation, depreciation of equipment, fuel oil, electricity and water costs.

2. Production Cost (Social Price) is the cost calculated to describe the actual social value for the cost elements consisting of:
    a. The tradable input costs are the price of chicken meat and all the production costs traded in the international market. Imported goods or commodity are used by Cost Insurance Freight (CIF) price, while for exported goods or commodity Free On Board (FOB) is used.
    b. The non-tradable input costs, i.e., labor, and capital. Includes opportunity costs because these factors did not trade in international markets, so there is no price.
3. Kilogram (kg) used as a measure of body live weight chicken production; chicken farmers in Malang Regency have produced it.
4. Private Profit, that is the calculation of revenue minus input costs traded and domestic factors at private prices.
5. The social profit that is the calculation of revenue minus cost for traded input and domestic factor at a social price
6. Private Cost Ratio (PCR), i.e., the ratio between domestic factor costs and added value in private prices.
7. Domestic Resource Cost Ratio (DRCR), which is the ratio between the cost of domestic factors with the added value of output on social prices.

3.3.2. Shadow Price and Exchange Value

The Kurs determination rate on the development of foreign currency exchange rate as a reference (US Dollar). The determination of the shadow value of the exchange rate is calculated based on the method which has been formulated by Square Van der Tak referred to in Gittlinger (1986) that the determination of the shadow price of the currency exchange rate is determined using the following formula:

SER = OER/SCFt

Information:

SER = Shadow Exchange Value (IDR/US $)

OER = Shadow Exchange Rate/Kurs (IDR/US $)

SCFt = The standard Conversion Factor, which is the ratio of the value of imports and exports plus taxes, may be determined as follows:

SCFt = Xt +Mt/ (Xt – Txt) + (Mt + Tmt)

Information :

SCFt = Standard Conversion Factor for year t

Mt = Import value of Indonesia for year t (IDR)

Xt = Value of Indonesia Exports for year t (IDR)

Tmt = Government Receipts from Import Tax for year t (IDR)

Txt = Government Receipts from the export tax for the year t (IDR)

So by using the average exchange rate dollar or official exchange rate (OER) during the year 2017 of 13,515.77 IDR/US $, SER's value is 13,515.77 IDR with an SCF value of 100% The complete calculation

of the exchange rate shadow price presented in Appendix 3.

3.3.3. Determination of Input Shadow Price

1. Indigenous Chicken

   Chicken meat is not an internationally traded commodity, and it included in a nontradable input component.

2. Labour

   Determination of minimum wages in various regions cause paid wages do not reflect the actual value, which is more bear than social opportunity cost. Thus the wage of labor is calculated from 80% of the prevailing rate in the study area.

3. Electricity and Water

   Costs incurred for the production process or the running of the business is the product of state enterprises such as PLN and PDAM, so the cost of the shadow price is equal to the actual price. Electricity included in non-tradable components that subsidized.

4. Fuel

   Transportation activities and delivery of chicken meat to consumers using vehicles included in the components that have subsidies from the Government so that it considered as a non-tradable component.

5. Depreciation

   Depreciation costs such as cages, equipment and equipment and vehicles in the chicken poultry business are the accumulated depreciation cost of

goods or buildings so that the same as the market price (non-tradable).

3.3.4. Determination of Shadow Price Output (Social Price)

International Products are traded using Cost Insurance Freight (CIF) prices which are then converted to shadow exchange rates and supplemented with transportation costs and trading costs (Kotler, 2002). For the shadow price of indigenous chicken, chicken manure, and sack because it did not trade in international then it used is the real price applicable in the research area or the shadow price is equal to the private price.

3.3.5. Policy Analysis Matrix (PAM)

Quantitative data analysis methods in this study using Policy Analysis Matrix (PAM). Person *et al.*, (2005) explains that in the PAM method analysis table there are three rows of four columns representing all the production and income needs of the company. Also, in each column in the PAM analysis table, there are several identities, one of which is the identity of the profit level (profitability identity) which describes the relationship between cross-column calculations of the matrix. Profits defined as revenue minus cost, so all the numbers below the column named "profit" are themselves identical to the difference between the column containing "revenue" and the column containing the "cost" (including the tradable input costs and domestic factors).

The concept of competitiveness analysis in this research has been carried out by some previous researchers. So this study uses a reference research method from Gerungan (2013), which uses a single period Analysis Policy Matrix (PAM) data analysis method and uses limits by merely calculating private profits, social profit, and competitiveness with competitive and comparative advantages.

The advantages of this PAM model can obtain the coefficient of Domestic Resources Cost Ratio (DRCR) and Social Profit as an indicator of comparative advantages and can generate some other indicators related to competitiveness variables, such as Private Cost Ratio (PCR) and Private Profits (PP) as a competitive advantage. Based on the above explanation of this study using a method with the approach of competitive advantages and comparative advantages of PAM model with the formula presented Table 3 as follows.

Table 3. Preparation of Policy Analysis Matrix (PAM)

Description	Revenue	Cost		Profit
		Input Tradable	Factor Domestic	
Private Price	A	B	C	D
Social Price	E	F	G	H
Divergence and efficient wisdom	I	J	K	L

Based on the matrices arrangement Table 3, it can be analyzed using various indicators as follows:

1. Private Profit (D) = A-B-C
2. Social Profit (H) = E-F-G
3. Transfer Output (I) = A-E
4. Input Transfer (J) = B-F
5. Factor Transfer (K) = C-G
6. Net Transfer (L) = D-H ; L = J-K
7. Competitive Advantages: Private Cost Coefficient PCR = $\frac{C}{A-B}$
8. Comparative Advantages: Domestic Resource Cost Coefficient: DRCR = $\frac{G}{E-F}$
9. Nominal Protection Coefficient Output: NPCO = A/E
10. Nominal Protection Coefficient Input: NPCI = B/F
11. Profit coefficient (PC) = D/H
12. Effective Protection Coefficient (EPC) = $\frac{(A-B)}{(E-F)}$
13. Subsidy Ratio to Producer: (SRP) = L/E

Based on Table 3, then it can be analyzed using several indicators used in analyzing competitive advantages and comparative advantages. The indicators analyzed are as follows:

1. Private Profit Analysis (Private Profitability/ PP): D = A – (B+C);
   Where;

D = Profit based on actual price (Privat Profitability)

A = Revenue (Actual Price) obtained from the multiplication of the average production of chicken meat (kg) sold multiplied by the selling price (Rp)

C = Cost of domestic input factor (Non-tradable Input Cost) based on the actual price

If the private profit is negative (D <0), then a business loses or is not feasible to doing production. Conversely, if positive private gain (D> 0) then a business is feasible to develop because it has average profit.

2. Social Profit Analysis (Social Profitability/ SP): H = E–(F+G)

   Where;

   E = Revenue (Social Price) obtained from the multiplication of the average amount of chicken meat production (kg) multiplied by the social price of chicken meat.

   F = Cost of inputs traded on International markets

   G = Domestic factor costs (Non-tradable input costs) based on social prices.

   If H <0 then a business is said to be inefficient. Conversely, if H> 0 it indicates that the business is efficient and has a high comparative advantage.

3. Analysis of Competitive Advantages with Indicator Private Cost Ratio; PCR = C/(A-B); a business can be said to have a competitive advantage if the value of PCR <1, so the smaller the value of the business PCR the more competitive the business.

4. Analysis of Comparative Advantages with Domestic Indicator Resource Cost Ratio; DRCR = G/(E-F); the value of DRCR <1 indicates an efficient business is economically advantageous in the utilization of domestic resources whereas if the value of DRCR> 1 then indicates the activity is inefficient. So in other words, the indicator has also shown the level of comparative advantages of a business.

3.4. Terminology and Discussing Limitation

1. The crossbreed indigenous chicken commodity is Javanese Super chicken breed and Native chicken breed produced by indigenous chicken farmers.
2. Native Javanese Indigenous chicken is a crossbreed developed by Mr. Agus (Breeder Indigenous Chicken in Tlogo Mas Malang / Supplier Indigenous Chicken DOC). It is cross between male Bangkok pure with female indigenous chicken pure.
3. Super Javanese Indigenous Chicken is one of indigenous which is a cross between male indigenous chicken pure with female broiler
4. Revenue or acceptance is the number of product sales received by the farmers.
5. Profit is the profit received by farmers (the difference between the receipt and the cost).
6. Input is the value or goods/services used in the production of farmers.
7. The output is the result of production (product sales) of farmers.

8. Policy Analysis Matrix is analyzing feasibility both privately and socially. With this approach, competitive advantages (financial efficiency) and comparative advantages (economic efficiency), and the impact of government.
9. Private Profitability is a competitiveness indicator of commodity system based on technology, output value, input cost and policy transfer.
10. Social Profitability or social profit is an indicator of the efficiency of commodity system on condition there is no divergence and policy implementation.
11. Tradable input is a production input that can trade internationally.
12. The non-tradable/domestic factor is a production input that cannot trade internationally.
13. Competitive advantages characterize using the positive value of Private Profits and Private Ratio of Costs.
14. Comparative advantages characterize using the positive value of Social Benefits and DCRC Value.
15. Free On Board (FOB) price is the border price used for exported goods, stated the US $. This price is used to calculate the selling value of chicken meat products (output) at social prices.
16. Cost Insurance and Freight (CIF) are the border prices used for imported goods, stated in US $. This price is used to calculate the input value at social prices.
17. Divergence is the value of the difference that arises between the private price line and the social price

interpreted as a form of market failure or government intervention (policy distortion).

CHAPTER IV
RESULTS AND DISCUSSIONS

4.1. General Description

4.1.1. Malang Regency

Malang Regency is an area located in the southern central part of East Java Province. It borders six districts and the Indonesian Ocean. North-East side, adjacent to Pasuruan and Probolinggo districts. Eastside, adjacent to Lumajang Regency. Southside, adjacent to Ocean Indonesia. Westside, adjacent to Regency of Blitar. The North West is adjacent to Kediri and Mojokerto districts Figure 3. Such geographical location makes Malang Regency has a strategic position. It is marked by the increasingly busy transportation routes north and south through the Malang regency from time to time. The position of the coordinates of Malang Regency lies between 112°17 ', 10.90 "East Longitude and 112°57', 00.00" East Longitude and between 7°44 ', 55.11 "South Latitude and 8°26', 35.45" South Latitude (Kominfo Service Malang Regency, 2017).

Malang Regency has an area of approximately 2,977.05 Km^2 (Source: Malang District Government Section), Malang Regency located on the second most abundant area after Banyuwangi Regency from 38 regencies/cities in East Java Province. There are nine mountains and one mountain that spread evenly in the North, East, South and West areas of Malang Regency (Figure 3) (Kominfo Service Malang Regency, 2017).

Mountain topography and rough conditions make the Malang Regency as a cool area and much in demand as a place to stay and a resting place. The average air temperature is relatively moderate, ranging from 23.3ºC to 27.1ºC. The average air humidity ranges from 61 percent to 90 percent and average rainfall ranges from 45 mm to 628 mm (Kominfo Service Malang Regency, 2017).

Malang Regency has an appropriate natural condition to conduct this indigenous chicken farming as evidenced by the BPS Malang Regency (2016) shown in Table 4, an increase of the total population of indigenous chicken from 2013 to 2016 with the total population of chicken from 2,141,663 up to 2,318,121. According to Gunawan and Sihombing (2004) stated within the optimum temperature range, chickens can use the feed more efficiently, because the chicken does not release energy to cope with the ordinary environmental temperature. At higher environmental temperatures, chickens try to keep their body temperature by balancing heat production with heat loss, using the help of physical devices and changing the insulative properties of the feathers. The indigenous chicken could reach optimal productivity if reared on the thermoneutral zone or comfortable environment temperature. The comfortable environment temperature for the indigenous chicken is still unknown, but it predicted at around 18 to 25°C and it appropriate with the condition of Malang Regency.

Table 4. Livestock Population by Type of Livestock In Malang Regency, 2013 - 2016 (head)

Types of Livestock	2013	2014	2015	2016
Dairy Cattle	189,145	199,453	212,821	223,717
Cattle	72,217	75,683	78,029	81,150
Buffalo	1,394	1,266	1,127	1,150
Horse	614	626	836	861
Goat	225,374	235,121	240,823	248,048
Lamb	30,392	31,496	33,284	33,284
Swine	12,028	12,241	12,826	13,262
Indigenous Chicken	2,141,663	2,201,166	2,254,982	2,318,121
Layer Chicken	16,044,990	17,571,738	27,642,192	5,765,796
Broiler Chicken	2,920,857	3,005,562	5,597,860	28,335,754
Duck	226,149	400,472	468,481	481,130
Entog	92,412	400,287	420,892	432,256
Rabbit	36,256	38,505	40,667	41,590
Quail	77,796	156,288	158,055	161,690

Source: BPS Malang Regency (2016)

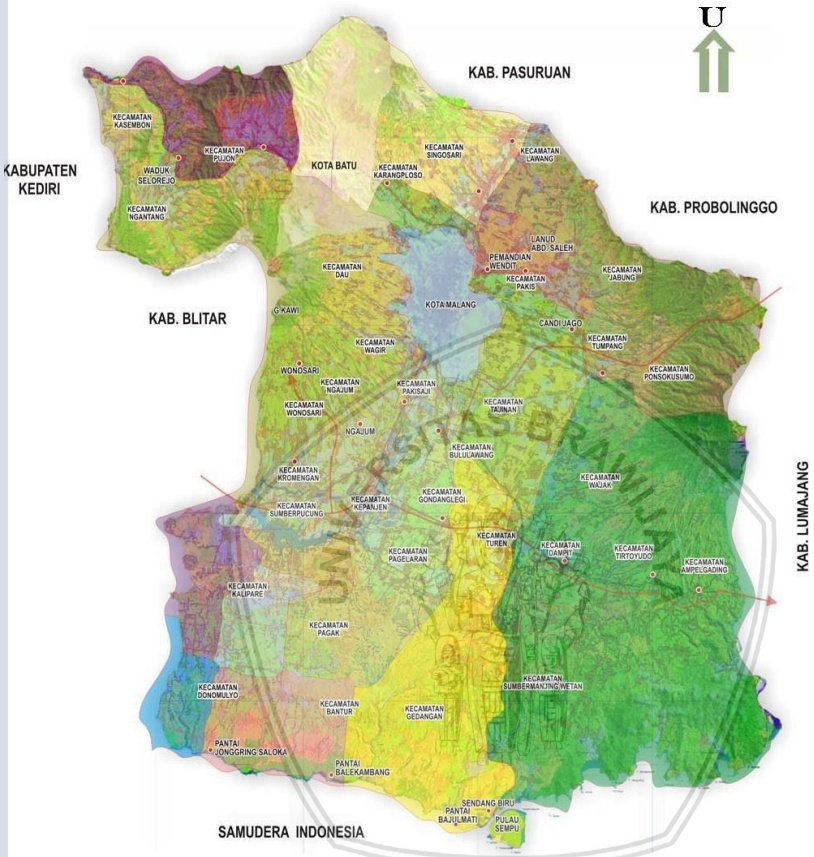

Figure 3. Map of Malang Regency

4.1.2. Wagir District

Wagir District located in the northern part of Malang Regency. It bordered by four subdistricts, Malang City, and Blitar District. Northside, adjacent to DAU District. Eastside, adjacent to Malang City. Southside, adjacent to Pakisaji District, Ngajum District, and Wonosari District. Wagir District has a

strategic position (geographical causes). It marked of increasingly crowded northern transport route north of through District Wagir. The position of Wagir District coordinates is located between 112.5406 East Longitude and 112.6112 East Longitude and between 8.0301 south latitude and 1.9702 south latitude (Wagir District Government, 2018).

Wagir District total area is about 75.43 Km^2 or about 2.53 percent of the total area of Malang Regency and is on the seventh largest of 33 sub-districts in Malang Regency. Topographic condition Wagir subdistrict is a flat area and hills at an altitude of 474 meters above sea level (dpi) (Wagir District Government, 2018).

Table 5. The population of Several District in Malang Regency

District	Population	Population by Sex		Sex Ratio	Average
		Male	Female		
Wagir	20,083	40,585	39,428	102.93	4
Gondanglegi	20,790	40,592	40,903	99.24	3.9
Kepanjen	26,862	50,932	51,689	98.54	3.8

Source: Based on Population of Census (2010)

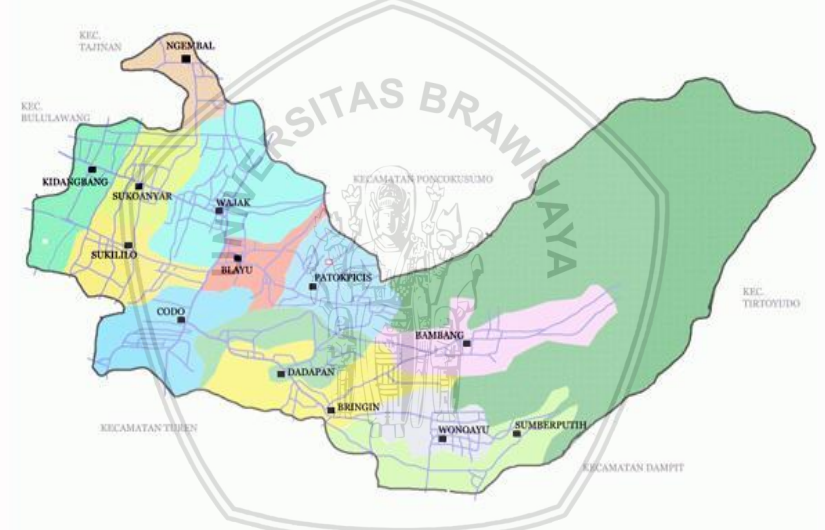

Figure 4. Map of Wagir District

Table 5 shows the data population of Wagir District. It has a total of 20,083 population with a percentage of sex ratio, men population larger than women population. Air pressure in Wagir District during 2011 is in a relatively stable condition. The average air pressure that occurs for 945.84 millibars or ranged between 941.60 millibars to 949.60 millibars. While the temperatures in Wagir District fluctuated considerably between 17.0 °C and 29.8 °C and the lowest temperatures occurred in August with temperatures around 17.0 °C. (Wagir District Government, 2018)

Table 6. The population of Poultry by Several Subdistrict in Malang Regency, 2016

No.	Subdistrict	Indigenous Chicken (bird)	Laying (bird)	Broiler (bird)	Duck (bird)	Entog (bird)	Quail (bird)
1.	Wagir	60,319	70,489	1,857,555	1,207	964	429
2.	Wonosari	50,301	85,915	830,117	10,893	11,037	320
3.	Donomulyo	41,232	80,858	939,183	13,309	21,691	839
4.	Bululawang	41,223	221,012	3,395,736	13,357	18,278	12,570

Source: Livestock and Animal Health Service Office of Malang Regency (2016)

Table 6 shows the data population of poultry by several subdistricts in Malang Regency, Wagir Subdistrict has a total indigenous chicken population around 60,319.

4.2. Profil of Indigenous Chicken

Indigenous chicken is a long-term derivative of the historical process. Indigenous chicken has domestication that chickens indicated from the domestication of red jungle fowls (Gallus gallus), and red jungle fowls Green jungle fowls (Gallus varius). Initially, the chicken Live in the forest, then domesticated and developed by the community Countryside (Agromedia, 2007).

Indigenous chicken also one of the poultry that is rearing in the village with traditional ways and needed small capital than broiler, based on Rasyid (2002) explained that maintenance of indigenous chicken in rural areas is easy with simple technology, and sometimes can be used for saving and a part-time job. Indigenous chicken has classified based on Zein and Sulandari (2012):

Kingdom	: Animalia
Filum	: Chordata
Subfilum	: Vertebrata
Kelas	: Aves
Subclass	: Neonithes
Superordo	: Superordo
Ordo	: Galliformes
Family	: Phasianidae
Genus	: Gallus
Species	: Gallus domesticus

Indigenous chicken also has many types based on Indigenous chicken for produce egg; indigenous chicken produces meats, indigenous chicken produces good vocal and singing. The type which produces eggs and meats that always being the protein resources in the human life. Indigenous chicken that produces meats has converted their feed into meats.

Indigenous chicken that produces meats also has many types; the type is Nunukan, Pelung, and Bangkok (Jatmiko, 2001). Even the indigenous have the type as meats producer; they can not produce meats faster than the broiler. The advantages of indigenous chicken are resistance to disease, has high nutrient and has smooth meats texture. The advantages have low productivity and can not increase their meats faster.

Indigenous chicken traditionally reared in rural areas reach the age of 6 until seven months with body weight 1.4 kg until 1.6 kg (Zein and Sulandari, 2012). Usually, the carcass of indigenous chicken cut at the age of 4-6 month. This problem makes geneticists to find a solution is to create a cross between indigenous chicken breed with broiler breed to increase the production of meats.

4.2.1. Native Javanese Indigenous Chicken

Native Javanese indigenous chicken (Figure 5) is a crossbreed developed by Mr. Agus (Breeder Indigenous Chicken in Tlogo Mas Malang / Supplier Indigenous Chicken DOC). It is cross between male Bangkok pure with female indigenous chicken pure. The characteristics of the native chicken can produce with many numbers and the same performance, the growth rate faster than another native breed chicken, have a low mortality rate, less than Feed Conversion Ratio (FCR) adaptable with the environment and has meat taste like original indigenous chicken. The age of native Javanese chicken is 55 - 60 days.

Maintenance patterns have evolved towards semi-intensive and intensive maintenance systems can improve Indigenous chicken productivity, although the traditional pattern remains dominant. Also,

productivity improvement efforts are not enough only for the improvement of feed and maintenance management, but also need to be improved genetic quality with the breeding program (Gunawan and Sartika, 2001).

The provision of indigenous chicken breeds with good genetic quality very difficult to obtain because there are no bright and ethical breeding practices of local breeds. Most of the new provision of indigenous chicken breeds that exist are limited to the hatchery for the needs of breeders themselves or to be sold based on reservations first. In this case, the quality of the breeds does not base on specific quality criteria. The selected breeds are qualified as they are. In fact, It derives from the crosses with the broiler or Bangkok chicken or Arab chicken. The provision of breeds of the crosses as mentioned above has developed in the areas of East Java and Central Java including Mr. Agus's breeding farm (Sartika, 2012).

Figure 5 Native Javanese Indigenous Chicken Developed by Mr. Agus

4.2.2. Super Javanese Indigenous Chicken

In this research also detected that indigenous chicken that used is indigenous chicken crossbreed type. This crossbreed chicken is called "*Ayam Jawa Super/Joper*." Joper chickens (Figure 6) is one of indigenous which is a cross between male indigenous chicken pure with female broiler (Iskandar, 2006). The characteristics of Joper chicken can produce with many numbers and same performance, the growth rate faster than broilers, have a low mortality rate, adaptable with the environment and has the same taste with pure indigenous chicken. The age of Japer chickens is more or less two months (Munandar and Pramono, 2014).

Super Javanese indigenous chicken is the result of a crossing between local chicken with laying chicken race type. This chicken cross has faster growth than local chickens. Super indigenous chicken has a shape similar to other chickens. Super indigenous chicken breeding more profitable because it can harvest in a shorter time (Batara, Tasse, and Napirah, 2015).

It is one of the efforts to improve the farmer's economy to get maximum profit. Most farmers do not know the influence of production costs that include aspects of management, feed, and seeds to the benefits of super indigenous chicken farming (Wiranata, Sanyoto, and Subagja, 2017).

Figure 6 Super Javanese Indigenous Chicken

4.2.3. The Trade Flow of Indigenous Chicken

The trade flow of indigenous chicken is the process of production from farmers until to consumers. Including all institutions that function in distributing products from the manufacturer to the end customer. According to Anwar (2012), it can define as a set of activities (in the form of entities/facilities) involved in the process of transformation and distribution of goods from raw materials of natural earliest until the finished product at the end consumer.

The technical aspects of livestock are mutually filling and interdependent with the management and economic aspects of farms. For example, many

produced indigenous chicken will not be useful if it can not sell in the market because of a block on wholesale. The excellent trade flow is the producer has a good relationship with the familiar retailers. The efficient marketing of indigenous chickens will increase the selling value of the product (Rasyaf, 1991).

The trade flow of indigenous chicken is not only included producers and suppliers, but also carriers, warehouses, retailers, and even customers themselves. Each organization, such as a manufacturer, The trade flow covers all the functions involved in receiving and meeting customer demand. The function is comprehensive but not limited to new product development, marketing, operations, distribution, finance, and customer service.

The flow of indigenous chicken trade system in Malang Regency start from the chicken farmer that produces the initial product (live weight of chicken) will then be sent to the butcher to process into carcass then will be collected by the supplier. The final consumer of indigenous chicken is restaurant, market, or an individual consumer. According to Elizabeth and Rusdiana (2012) stated indigenous chicken marketing is: from farmers, merchants, collectors, wholesalers/poultry shop and consumers. The flow trade in the business of indigenous chicken production is shown in Figure 7 as follows :

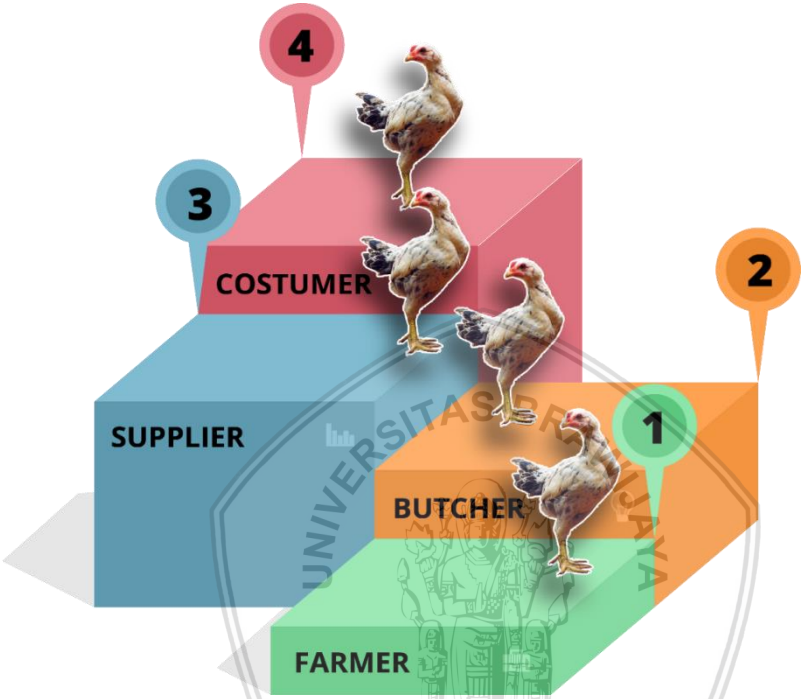

Figure 7. The Trade Flow of Indigenous Chicken

4.3. Production Cost of Indigenous Chicken

Indigenous chicken farming activities require inputs to support their business such as chicken seeds (DOC), feed, medicines and vaccines, labor, building and cage equipment to produce the output of live chicken weight as the result of chicken breeding business. The following is more detailed of production cost data can be seen in Table 7. The data in the table is consists of two type cost. The first is fixed cost includes the cost equipment, the cages cost, the building of cost, the cost and the cost calculated become depreciation cost/period. The

second one is variable cost includes DOC cost, feed cost, vitamin cost, and medicine cost, employee cost, electricity cost, pulse cost. According to Santa, Makalew, and Waleleng (2014) stated revenue received by farmers determine the size of the cost used in the production process because the cost of production is one significant factor.

Fixed costs in the business of poultry farms include; the cost of Land Building Tax (PBB), lease land, rent cage, shrinkage of cages and equipment, while variable costs include; the cost of production means, labor cost, and electricity cost. The fixed costs incurred by the breeders include the cost of land rent, fixed wage, depreciation, and other expenses. These fixed costs are all held themselves. Depreciation divide into depreciation of buildings and equipment. Non-fixed costs or variable costs are costs that vary with or in line with the size of production activities. Variable costs in the broiler business include the cost of Day Old Chick (DOC), feed, medicines, and operations (labor, electricity, water, husk, and LPG gas). The supplier sets the cost of DOC, feed, and medicines at the beginning of the maintenance period (Ismail, Utami, and Hartono, 2014).

The feed price and DOC are significant policy variables in the decision function of poultry farmers. It will affect the revenue generated due to input and output relationships. It also occurs in chicken farms with different seed inputs (Sajutil, 2001).

Table 7. Production Cost of Indigenous Chicken Commodity

Item	Type of Indigenous Chicken			
	Native Javanese		Super Javanese	
	Total (IDR)/Bird	Precentage %	Total (IDR)/Bird	Precentage %
Fixed Costs (Depreciations)				
Cages	3,333.33	13.16	2,666.67	11.44
Building and area	666.67	2.63	666.67	2.86
Feed buckets	53.33	0.21	53.33	0.23
Drink buckets	60.00	0.24	60.00	0.26
Scales	60.00	0.24	60.00	0.26
Large buckets	5.33	0.02	5.33	0.02
Small buckets	6.00	0.02	6.00	0.03
Water scoop	1.33	0.01	1.33	0.01
Water hose	13.33	0.05	13.33	0.06
Broom	13.33	0.05	13.33	0.06
Land	0.16	0.0006	0.16	0.0007
Transportation	4.30	0.0170	4.30	0.0184
Lamp	1,000.00	3.95	1,000.00	4.29
Building Tax	16.00	0.06	16.00	0.07
Total	**5,233.13**	**20.66**	**4,566.46**	**19.59**
Variable Costs				
DOC	5,000.00	19.74	5,000.00	21.45
Feed on starter	1,849.32	7.30	1,520.27	6.52
Feed on grower	12,328.77	48.68	11,351.35	48.69
Vitamine	49.81	0.20	10.67	0.05
Antiseptic	10.00	0.04	10.00	0.04
Medicine	73.33	0.29	73.33	0.31
Employee	400.00	1.58	400.00	1.72
Electricity	49.81	0.20	49.81	0.21
Pulse of Handphone	333.33	1.32	333.33	1.43
Total	**20,094.37**	**79.34**	**18,748.76**	**80.41**
Total Cost	**25,327.50**	**100.00**	**23,315.22**	**100.00**

*) Live Weight/Bird = 0.8 kg

*) Period = 60 Days

Source: Primary and Secondary Data Proceed (2018)

The fixed costs in the native Javanese indigenous chicken type is from depreciation equipment (cages) cost; it is 3,333.33 IDR/bird and building tax 16 IDR/bird. The variable costs are from DOC 5,000 IDR/bird, feed cost is 14,178.09 IDR/bird, for starter phase is 1,849.32 IDR/bird, and for grower phase is 12,328.77 IDR/bird, vitamin cost is 10.67 IDR/bird, antiseptic is 10 IDR/bird, medicine cost is 73.33 IDR/bird, employee cost is 400 IDR/bird, electricity cost is 49.81 IDR/bird, pulse of handphone cost is 333.33 IDR/bird. The fixed cost of this farm is 5,233.13 IDR/bird. Variable cost is 20,094.37 IDR/bird. The total cost of this farm is 25,327.50 IDR/bird. The feed cost is the highest cost of the variable cost.

Super Javanese indigenous chicken type has the fixed costs of depreciation equipment cost (cages) 2,666.67 IDR/bird and building tax 16 IDR/bird. The variable costs are from DOC 5,000 IDR/bird, feed cost is 12,871.62 IDR/bird, for starter phase is 1,520.27 IDR/bird, and for grower phase is 11,351.35 IDR/bird, vitamin cost is 10.67 IDR/bird, antiseptic is 10 IDR/bird, medicine cost is 73.33 IDR/bird, employee cost is 400 IDR/bird, electricity cost is 49.81 IDR, pulse of handphone cost is 333.33 IDR/bird. The fixed cost of this farm 4,566.46 IDR/bird. Variable cost is 18,748.76 IDR/bird. The total cost of this farm is 23,315.22 IDR/bird. The feed cost is the highest cost of the variable cost.

Both data show the feed cost is the highest because feed cost is a primary product that needed on the farm. Feed purchase is the most significant cost of all production costs. It is appropriate to Dewanti and Sihombing (2012) feed cost is the largest of the total cost because everyday cattle need feed to survive and produce. An additional feed for chickens in the form of kitchen remains and forage like spinach obtained from the yard of the house. Kurniawan, Widodo, and Natsir (2007)

feed is the most significant component of the production cost of about 50-70%. An alternative feed search as a substitute for feed sources is a farmer's effort to minimize feed costs. The revenue and calculation of the indigenous farmer will be presented in Table 8 as follows :

Table 8. Revenue of Indigenous Chicken Commodity

No.	Information	Type of Indigenous Chicken	
		Native Javanese Total (IDR)/Bird	Super Javanese Total (IDR)/Bird
1.	Revenue		
	Life Body Weight of Indigenous Chicken (kg)	28,000	28,000
	Chicken Manure (kg)	5,000	5,000
	Sack	23	23
	Total	33,023	33,023
2.	Production Cost	25,327	23,315
3.	Profit (1-2)	7,695	9,707
4.	R/C	1.30	1.42

*) Live Weight/Bird = 0.8 kg
*) Period = 60 Days
Source : Primary Data Proceed (2018)

The concept of PAM analysis that describes on the farm and post-farm activities in this study shows that the components of fix cost and variable costs are by the conditions received by farmers with the same selling price. Such conditions may support PAM analysis performed at post farm level with secondary data from multiple sources.

4.4. Competitiveness Analysis

The purpose of competitive advantages analysis and comparative advantages analysis is to study the feasibility, prospects, and capabilities of indigenous chicken commodities in competing with similar products based on their private and social values. So the competitiveness of chicken produced can analyze using Policy Analysis Matrix (PAM).

The PAM method based on revenue and production costs, which divided into private prices and social prices. The private price which is the actual condition received by the chicken farmer, so the value of the income comes from the selling price of body live weight chicken. Often according to Kariyasa (2003) stated the competitiveness of a commodity measure using a comparative and competitive advantages approach. Comparative advantage is a concept developed by David Ricardo to explain the efficiency of open resource allocation. (Krugman and Obstfeld, 2000). The comparative advantages of a product analyze using Domestic Resource Cost Ratio (DRCR) approach. To obtain the value of DRCR, then the analysis used is Policy Analysis Matrix (Pearson et al., 2005). While the value of the production cost comes from the value arising from the activities of chicken production including DOC, feed prices, medicines, and vitamins.

The social price line shows the total output of output and input at the private price entered in the second row and it is using the social price or the shadow price. The social price

(shadow price) derive from the international price for the same product or commodity. Identification of inputs and outputs of indigenous chicken farming with the input component is feed, DOC, vitamins, vaccines, labor, cages, equipment, and land. The resulting output is body live weight chicken, including chicken manure and sacks produced as a by-product. In the economic analysis, the price used is the social price, because the market price does not reflect the cost of social equilibrium. Social prices determine to adjust for price deviations that result from government policies, such as subsidies, taxes, pricing policies, and other distortions. A commodity will have the same social equity cost as its actual price if it is correctly competitive market conditions. However, such a market is in fact hard to find, because of government interference (Ilham and Swastika, 2001). Each input and output set at two levels of price, i.e., market price (private price) and shadow price (social price or economic price). Gittinger (1982) in Saptana and Rusastra (2015), determines the shadow price by issuing a distortion of government policy or due to market failure. The opportunity cost of a good can be the shadow price, but it is difficult to determine the opportunity price of an item, to determine the value near the shadow price, it is necessary to adjust the prevailing market price by reducing indirect taxes or adding. Meanwhile, according to (Pearson et al., 2003), to determine the social price of traded commodities approached with a border price. For exported commodities use Free On Board (FOB) price and for imported commodities use Cost Insurance Freight (CIF). In more detail, the assumptions of the social pricing of outputs and inputs present in Appendix 4.

Table 9. Policy Analysis Matrix (PAM) of Indigenous Chicken

Information	Revenue	Cost		Profit
		Tradable Input	Non-Tradable Input	
Native Javanese Indigenous Chicken				
Private	33,022.67	19,316.19	5,972.16	7,734.31
Social	33,022.67	17,955.94	5,972.16	9,094.57
Divergence	0	1,360.26	0	-1,360.26
Super Javanese Indigenous Chicken				
Private	33,022.67	18,009.73	5,305.49	9,707.44
Social	33,022.67	16,780.12	5,305.49	10,937.05
Divergence	0	1,229.61	0	-1,229.61

*) Live Weight/Bird = 0.8 kg
*) Period = 60 Days
Source: Primary and Secondary Data Proceed (2018)

Table 9 shows the results of analysis of indigenous chicken production at private prices (first row) as price conditions received by farmers, and at social prices (second row) using international prices for traded components and social opportunity costs for components which are not internationally traded (Pearson et al., 2003). Earned receipts from the sale of indigenous chickens on Native Javanese type with a private price is 33,022.67 IDR/bird, with the total production cost is 25,327.50 IDR/bird (Table 7), which consists of feed costs, DOC, medicines (vitamins and vaccines), labor cost, cages, equipment, land, water, electricity and taxes (land

and building tax). So the profit on the private price earned of 7,734.31 IDR/bird in each production period. As for the super Javanese type acceptance of 33,022.67 IDR/bird, the total production cost is 23,315.22 IDR/bird and obtained the profit of 9,707.44 IDR/bird.

The profit gained on the private price is very much different from the condition of indigenous chicken farming at the social price of 9,094.57 IDR/bird (native Javanese indigenous chicken) and 10,937.05 IDR/bird (super Javanese indigenous chicken) using prices without distraction from government policy or international prices. It is because the tradable input of per bird chicken production obtained on the social price is smaller than private price, while the revenue and total cost of non-tradable production are equal between private and social costs according to the real condition. Some of the factors causing the difference are the social prices of tradable inputs such as the price of medicines and vitamins are lower than 10% of the actual price due to the removal of the distortion. Inappropriate to Antriyandarti, Ani, and Ferichani, (2012) the difference gained in the analysis of competitiveness is due to the actual calculation of social value if the commodity is in the perfect market and there is no interference from the government. Calculation of budget allocation for chicken farm production present in Appendix 5 and Appendix 6.

The same difference occurs in the PAM analysis of the native Javanese indigenous chicken and super Javanese indigenous chicken. That is in the private price line with the social price line causing the difference with the same trend (positive and negative) on each third line called divergence (Pearson et al., 2005). The resulting divergence row in the matrix presented in Table 9 is either a zero or 0 on the

divergence of receipts and the cost of non-tradable inputs; this is because all private and social components have the same value so that divergence becomes 0. This value indicates that the absence of market distortion in indigenous chicken commodities, the value of system efficiency equal to the value of rill, it is also influenced from the chicken commodity that is still a product in the country and still produced traditionally not reached the prospect for overseas sales / international markets.

Positive divergence on tradable inputs with the value of 1,360.26 (native Javanese type) and 1,229.61 (super Javanese type) occurred due to the use of indigenous chicken shadow prices are lower than private prices. It indicates the existence of government policies that result in higher private chicken prices such as the policy of imposition of 10% VAT of input products required by farmers.

The difference price also illustrates that the tariff policy given by the government has not been so effective in the angle of indigenous chicken farming because the government's policy has not been fully and thoroughly regulated in indigenous chicken farms compared to larger broiler farms and involving many stakeholders and industry in it. So those local farmers it provides a higher cost compared to the condition of social price/price efficiency. While the negative divergence in the profit column called Net Transfer (NT) of -1,360.26 (native Javanese type) and -1,229.61 (super Javanese type) occurs because the income (profit) on private prices is much lower than the profit efficiency should be obtained. So the divergence value that occurs is the result of the difference incurred in the private price line with the social price. The negative value conditions indicate a loss of profit of that value if market conditions without any distortion, the distortion in question is

the role of stakeholders that cause price changes that affect the input and input system on indigenous chicken farms, (Pearson et al., 2005).

Based on the calculation of tables PAM analysis performed the calculations to obtain the values that will be an indicator of the level of profit gained from producing indigenous chicken, both on native Javanese indigenous chicken and super Javanese chicken in the financial condition (private price) and economic (social prices), the value of competitive advantages, and the value of comparative advantages as well as value to measure the influence of government policy on output and input. Based on Table 9, the policy matrix analysis indicator shown in Table 10 which is the result of the further calculations obtained from the PAM analysis, while the calculation in more detail present in Appendix 8. The values emerging from some of these indicators are used to see the level of competitiveness commodities cultivated indigenous chicken farmers and saw the effect of policies implemented by the Indonesian government against indigenous chicken commodities. Here is an explanation of competitiveness indicators produced by indigenous chicken farmers in Malang Regency by using profit indicators as well as the competitive advantages and the comparative advantages.

Table 10. Policy Analysis Matrix (PAM) Indicator

Indicator	Value	
	Native Javanese Type	Super Javanese Type
Private Profitability (PP)	7,734.31	9,707.44
Private Cost Ratio (PCR)	0.44	0.35
Social Profitability (SP)	9,094.57	10,937.05
Domestic Resource Cost Ratio (DRCR)	0.40	0.33
Transfer Input (TI)	1,360.26	1,229.61
Nominal Protection Coefficient on Tradable Input (NPCI)	1.08	1.07
Factor Transfer (FT)	0	0
Transfer Output (TO)	0	0
Nominal Protection Coefficient on Tradable Output (NPCO)	1	1
Effective Protection Ceofficient (EPC)	0.91	0.92
Profitability Ceofficient (PC)	0.85	0.89
Net Transfer (NT)	-1,360.26	-1,229.61
Subsidy Ratio to Product (SRP)	-0.04	-0.04

*) Live Weight/Bird = 0.8 kg
*) Period = 60 Days
Source: Primary and Secondary Data Proceed (2018)

4.4.1. The Competitive Advantages

The analysis of competitive advantages consists of financial profit analysis or Private Profitability (PP) and the Private Cost Ratio (PCR). The financial profit of indigenous chicken farming production is the difference between the acceptance of chicken sales and the costs incurred to produce indigenous chicken calculated at the actual price or the private price of a price already affected by government policy. Based on Table 10, Therefore obtained the private profit for native indigenous chicken farmer of 7,734.31 IDR/bird. As for private receipts in the production of the type of super Javanese indigenous chicken is 9,707.44 IDR/bird larger 1,973.13 IDR compared to native Javanese indigenous chicken. The value of private profits (PP) greater than zero (0); (PP>0) indicates that the indigenous chicken production is profitable in private and can compete at the private price level.

In addition to using financial profit analysis, the measurement of the competitive advantages of chicken entrepreneur commodities can assesse from the Financial Cost Ratio (PCR). The PCR is the ratio between the cost of non-tradable inputs with added value or the difference between the receipts at the actual price level. The PCR value shows how the use of resources directed toward achieving financial efficiency if the value of PCR obtained is smaller than one (<1). So the smaller the value of PCR obtained the higher the level of competitive advantages possessed (Pearson et al., 2005).

Based on the calculation of indicators presented in Appendix 8, the results of PAM matrix analysis showed that the value of Private Cost Ratio (PCR) obtained was 0.44 (native Javanese type) and 0.35 (super Javanese type); (PCR>0). This value indicates that the production of indigenous chicken made by the chicken farmer in Malang Regency has been financially efficient and has a competitive advantage. Inappropriate to Yuzaria and Suryadi (2011) stated if a business has a Private Profitability>0 (positive), indicates that the livestock business has competitiveness at the actual market price level or actual price received and paid by the farmer. Breeders gain profit at the actual market price and can expand. The PCR value of 0.44 and 0.35 means that to get the added value of output at one rupiah at the private cost need an additional factor of 0.44 IDR (native Javanese type) and 0.35 IDR (super Javanese type). It means that the use of domestic factors is efficient, so it is feasible to produce because to increase the value-added chicken for one rupiah requires a factor cost less than one rupiah.

Malang Regency has the advantages of geography and climate that is suitable for the living needs of indigenous chicken. It is related to PCR value which shows that the cost of domestic factor (non-tradable) required only 0.44 IDR (native Javanese type) and 0.35 IDR (super Javanese type) to get the added value of 1 IDR (one rupiah). So it can say to be efficient by utilizing the domestic resources (non-tradable input). The resources referred to in this comparative

advantages are those included in the private line in the PAM analysis results in Table 10 with the details of the non-tradable inputs in Appendix 7. Utilization of domestic resources such as wage labor, electricity, capital, land, transportation, communication costs, and water has been used well and efficiently to generate high profits and good PCR value less than one (<1).

4.4.2. The Comparative Advantages

The Comparative advantages are one of the indicators to assess whether the chicken commodities produced by the chicken breeders in Malang Regency have competitiveness, can live without government assistance, and have a great opportunity as import substitution products. Comparative advantages measure using Social Profitability (SP) and Domestic Resource Cost Ratio (DRCR).

In essence, differences in calculations in private or financial analysis and economic analysis are five things, namely in the use of prices, tax calculations, subsidies, investment costs, loan repayment, and interest. The market price used in the calculation of financial analysis is often distorted by imperfect competition markets, various government policies such as taxes and subsidies, as well as unaccounted environmental impacts or externalities. This price distortion causes the market price does not reflect the actual economic value. It uses shadow prices or accounting, i.e., in economic analysis, prices adjusted in such a way as to describe the actual economic value of goods and services. Shadow price for a product or

factor of production is a social opportunity cost. (Bondansari, Sularso, and Dewanto, 2011).

Social profit is the advantages gained in perfect competition market where there is no government interference. Social Profitability (SP) of indigenous chicken farm business is positive (> 1) that is 9,094.57 IDR/Bird (native Javanese type) and 10,937.05 IDR/Bird (super Javanese type), The social benefits indicate that indigenous chicken production is profitable economically without any distraction from government policy.

The comparative advantages not only can be known through social (economic) benefits but also through the Domestic Resource Cost Ratio (DRCR). An economically efficient business if the DRC value is less than one (DRCR <1). A smaller DRCR value of one can show that to obtain an additional Rupiah of output; it is necessary to increment additional domestic factor costs less than one rupiah valued at the social price. The smaller the value of DRCR then the commodity will increasingly have a comparative advantage. A DRCR value higher than one (DRCR> 1) indicates resource wastage (Pearson et al., 2005).

The results of the analysis presented in Appendix 8 show that the value of DRCR obtained is 0.40 (native Javanese type) and 0.33 (super Javanese type). It shows that chicken commodity is efficient in using economic resources. Also, if elsewhere it produces one (1) DRCR and in the research area the results are 0.40 and 0.33, there is an efficiency of 0.60 and 0.67. The smaller value of DRCR also indicates

that the indigenous chicken farming business is economically efficient and has a comparative advantage.

While the value of social profitability is 9,094.57 IDR/bird (NJIC) and 10,937.05 IDR/bird (SJIC) per period compared to the private profit of 7,734.31 IDR (NJIC) and 9,707.44 IDR (SJIC) per period indicates greater income conditions at the social price level. The higher social benefits of private prices are due to government intervention in determining the price of tradable inputs such as taxes on the purchase of feed, medicines, and vitamins. The level of profit present in Appendix 7. So it indicates that the price of chicken in the level of breeders (private prices) is less competitive with higher profit levels than in social prices. Therefore the need for government policies that are more pro-active and touch directly to the constraints faced by farmers to increase profit from distortion is there.

The value of DRCR is smaller than the value of PCR (DRCR < PCR) in native Javanese type is (0.40<0.44) and in super Javanese type is (0.33< 0.35). It shows that there is government policy that decreases the efficiency of the producer in the process of chicken production. The value of social profits compared to the value of private profits indicates the effect of government interventions that provide incentives that are not good for farmers so that the social benefits generated from government intervention generated are quite high compared with private gain.

Susilowati (2003) stated the comparative advantages of a region can have a comparative advantages if it has abundant natural wealth, abundant labor, with low technology loads so that the factor of production becomes cheap and can be a mainstay to compete in trade and against the rush of goods a kind overseas in the short term.It is by the geographical location of Malang Regency area suitable for the chicken farming climate.

The comparative advantages reflected that the resources available in the region actively support the production of indigenous chicken efficiently. However, farmers need to be improved again to meet the proper requirements to be able to multiply the production compete internationally by exporting indigenous chicken meat. There should be the extension and pro-government policies to farmers not only focusing on large livestock and large industries but also have begun empowerment of the genetic potential that this nation has such as indigenous chicken commodities.

4.5. Impact of Government Policy

Government policies enacted in 2009 include the 10% (ten percent) Value Added Tax (VAT) value for goods sold including feed, vitamins, and medicines for the indigenous chickens under the provisions of the Constitution No.42 in 2009 article 7. The policies imposed by the government in economic business activity can have a positive or negative impact on business actors in the system. The impact of policies can also reduce or increase the production and economic activity. The analytical methods contained in the PAM table can be used to

calculate the impacts of the policies provided by the government, to produce some policy indicators.

Government-imposed interventions or policies usually aim to protect domestic producers. If the price of imported products of similar commodities is lower than domestic production, then it will weaken the competitiveness of domestic production because consumers will tend to buy products at lower prices. As a result, demand for domestic products will decline and will have an impact on domestic production and local producer revenues. Theoretically, the competitive advantages of a commodity are the resultant of the factors that determine the comparative advantages of the critical factors of the structure, behavior and market performance. Also, government intervention (government policy) will influence the competitive and comparative advantages of a commodity system. Conversely, data and information on competitive and comparative advantages should also consider in formulating policies and their implementation. (Siregar and Sumaryanto, 2003).

Problems arising from the policy will have an impact on the value of inputs needed by producers such as chicken breeders. The condition of the government policy should be more favorable to the chicken producers by providing the cost of feed or other inputs. The impact of policies imposed by the government may affect the inputs and outputs in which the PAM analysis demonstrate by some of the indicators included in the impact indicators of government policy on inputs and on outputs.

4.5.1. Impact of Government Policy on Input

Any intervention or policy imposed on input may be a tax or a subsidy. There is government policy

in the process production of indigenous chicken farming regarding inputs that can increase production cost; it can be import taxes or subsidies. Several policy impact indicators can demonstrate by Transfer Input (TI), Factor Transfer (FT), and Nominal Protection Coefficient Input (NPCI).

4.5.1.1. Input Transfer (IT)

The value of input transfers is the difference between the private cost of tradable input and the shadow cost. Positive Input (IT) transfers illustrate the existence of a negative subsidy or tax policy on tradable input elements that will reduce the producer's profitability. Conversely, if input transfers of negative value indicate a subsidy policy on inputs because at input prices the cost of inputs at the private price level is lower than the social price level (Pearson et al., 2005).

The analysis results in Appendix 8 shows that the value of Transfer Input (TI) is worth 1,360.26 IDR/bird (native Javanese indigenous chicken) and 1,229.61 IDR/bird (super Javanese indigenous chicken). The value of both TI shows the impact of government policy on tradable inputs that cost manufacturers 1,360.26 IDR on the native Javanese indigenous chicken and 1,229.61 IDR on the chicken breeding type of super Javanese indigenous chicken. It illustrates that there are taxes on tradable inputs in the form of purchases of feed, medicines, vitamins, e.i. of

NJIC is 19,316.19 IDR/bird, and SJIC is 18,009.73 IDR/bird, it makes the price of tradable input received by the breeder is higher than the social price of 17,955.94 IDR/bird (NJIC) and 16,780.12 IDR/bird (SJIC). The 10% VAT policy has not had a positive impact on the price of indigenous chicken commodities. Efforts to increase the competitiveness of a commodity must support by government policies such as taxation (VAT, tariffs downstream products downstream products, and inputs required by entrepreneurs) are conducive as well as fostering of breeders (Suprihatini, 2005).

4.5.1.2. Factor Transfer (FT)

The function of inputs in the process of indigenous chicken production not only the tradable cost factor, but there is also the internal factor of production determined by domestic price. Thus the transfer of domestic factors may arise as a result of market failures and different government policies. Factor Transfer (FT) is the price difference between the social price and the private price received by the cooperative for the payment of domestic factors (Pearson et al., 2005).

Based on the results of the analysis, the factor transfer value generated by 0 IDR on the farmer of native Javanese type and super Javanese type. It shows that the price of non-

tradable inputs issued by the government at the private price level equals the cost of the non-tradable inputs incurred when calculated at the social price. The zero point is due to the real price and the social price having the same assumption value.

4.5.1.3. Nominal Protection Ceofficient Input (NPCI)

Nominal Protection Coefficient Input (NPCI) is the ratio between tradable input costs calculated based on private price with tradable input cost calculated based on the shadow price and is an indication of input transfer. NPCI value greater than one (NPCI> 1) illustrates that the protection of tradable input producers also of taxes on the applicable input, while the high cost of production impairs the input function sector. Conversely, if the value of NPCI is smaller than one then illustrates the existence of a subsidy on the input (Pearson et al., 2005).

Table 10 shows the NPCI value obtained in this study is 1.08 for the native Javanese indigenous chicken and 1.07 for the super Javanese indigenous chicken. This data shows that there is a protection policy to the input producers so that the chicken producers at the private price level are harmed because the production cost increases with use of these inputs. Conversely, those who use social prices

benefit from 1.07 – 1.08 percent due to lower tradable input costs.

4.5.2. Impact of Government Policy on Output

The following analysis can be known how much the level of government influence on the output with the indicator of Transfer Output (TO) and Nominal Protection Coefficient Output (NPCO). Forms of government policy may be a subsidy or trade barrier policy. In this research, the form of government policy is 10% (ten percent) value for VAT for sale goods including feed, vitamins, and medicines for indigenous chicken by the provisions of the Constitution No.42 of 2009 Article 7 (Herawati, Haryono, and Lestari, 2016).

4.5.2.1. Transfer Output (TO)

The PAM analysis in Table 10 shows the differences that occur in the value of output at private prices and social prices. So that there is a difference called the value of Transfer Output (TO) that can indicate positive or negative value. If the resulting difference shows a positive Transfer Output (TO) value indicates that the government's policy on output causes the price of private chicken output to be higher than the output price at the shadow price condition. It indicates the existence of consumer incentives to producers where consumers pay higher than the price that should be paid. While the negative Transfer Output (TO) values indicate that government policies and current market distortions are causing

output prices to actual conditions to be lower than their shadow prices (Rachman, Simatupang, and Sudaryanto, 2004).

The analysis results in Appendix 8 shows that the breakeven Transfer Output (TO) value is 0 IDR (TO = 0 IDR), it means that on the breeding of native Javanese indigenous chicken and super Javanese indigenous chicken have the same number. The data shows that there is no distortion value of private prices and social prices and government policy. It also shows that the transfer of output from consumer to producer is 0 IDR/bird.

4.5.2.2. Nominal Output Protection Coefficient (NPCO)

Value of Nominal Protection Coefficient Output (NPCO) is the ratio between the revenue calculated based on the financial price with the acceptance calculated based on the shadow price. NPCO is an indication of Transfer Output where NPCO shows how much private prices differ from social prices (Pearson et al., 2005). NPCO value is smaller than one (NPCO <1), domestic price is lower than the world price. It means that domestic prices are protected. The NPCO value is 1 (Table 10), it means that both of the native and super Javanese Indigenous chicken farmers (NPCO = 1) indicate that the government policy has not regulated the chicken farming (Herawati et al.,

2016). In this case, breeders receive the same price for the price that should be / the price of efficiency, in other words, the domestic price has not received protection. It is also not supported by the 10% VAT rate.

4.5.3. Impact of Government Policy on Input-Output

The determination of the impact of the input-output policy uses a combined analysis of input policy and output policy. So the overall impact of the policy on both input and output can be seen from Effective Protection Coefficient (EPC), Net Transfer (NT), Profit Coefficient (PC), and Producer Subsidy Ratio (SRP) (Monke and Pearson, 1989).

4.5.3.1. Effective Protection Coefficient (EPC)

Effective protection coefficient is an indicator that arises from the overall impact of input and output on the indigenous chicken production system. So EPC can be obtained from the ratio between the difference in revenue and the tradable input cost calculated on the actual price by the difference in revenue and the tradable input cost calculated at the shadow price level. The value of the EPC illustrates the extent to which the effects arising from government policies are protective or inhibit domestic production (Rachman et al., 2004). EPC value in this research showed the negative result that is 0.91 (native Javanese indigenous chicken) and 0.92 (super Javanese indigenous

chicken) (EPC <1). So it indicates that the policies enacted by the government still can not protect domestic producers and efficiently run. It can illustrate that the policy has not protected local farmers and spur production because they have not obtained protection facilities from the government because the social costs are higher than their private costs.

4.5.3.2. Net Transfer (NT)

The net transfer is the difference between private net profit and net social gain. Net transfers can be used to see the magnitude of additional surplus producers or reduced producer surplus caused by government policy. The positive value of NT indicates that there is an incentive policy that enables producer surplus to increase, while the negative value of NT causes producer surplus to decrease (Simatupang and Hadi, 2004). Based on the results of the research presented in Table 10, the net transfer value at the study sites was -1,360.26 (native Javanese indigenous chicken) and -1,229.61 (super Javanese indigenous chicken), the negative values indicated that there was a policy that reduced the producer surplus.

4.5.3.3.Profit Coefficient (PC)

Profit coefficient is the ratio between private net profit and net social gain. Profit

coefficient is an indicator showing the incentive impact of all output policies, external input policies, and domestic input (net policy transfer) (Pearson et al., 2005). The PC value of 0.85 in the native Javanese indigenous chicken and 0.89 in the super Javanese indigenous chicken, it shows that private profits have increased private profits by about ± 0.85 – 0.89 times greater than they should do in the production activity.

4.5.3.4. Subsidy Ratio for Producers (SRP)

The Subsidy Ratio for Producers (SRP) is the ratio between net transfers to receipts based on shadow prices that indicate the percentage of subsidies or net incentives on receipt. Negative SRP values (SRP <0) indicate a general government policy that causes producers to incur production costs on inputs higher than the cost of counterparts for production. A positive SRP score (SRP> 0) indicates that a government policy causes producers to incur lower production costs for inputs than the cost of counterparts for production (Rachman et al., 2004).

The result of this study showed SRP value of native Javanese indigenous chicken is -0.04 and super Javanese indigenous chicken is -0.04, (SRP <0) (Appendix 8). In other words, government policy about 10% VAT has a negative impact on the indigenous chicken

farmer, because the farmer incurs greater production cost ± 0.04 % of the opportunity cost to produce.

In general government policy has negatively affected to the activities of indigenous chicken production by farmers both the native Javanese indigenous chicken and super Javanese indigenous chicken in Malang Regency.

4.6. Product Comparison

Based on the results of research and discussion of several sub-chapters above can be compiled between the native Javanese indigenous chicken and super Javanese indigenous chicken presented in Table 11.

From Table 11 it could conclude that with the same inputs and the same production of chicken farmers more preferences of choice to the type of super Javanese chicken. It is because the super Javanese breed is beneficial and it has more effectiveness than native Javanese indigenous chicken.

Table 11. PAM Comparison Value of Indigenous Chicken Commodity

Indicator	Value		(Native Javanese Indigenous Chicken >< Super Javanese Indigenous Chicken)	Information
	Native Javanese Type	Super Javanese Type		
R/C	1.24	1.24	<	Super Javanese
Private Profitability (PP)	7,734.31	9,707.44	<	Super Javanese
Private Cost Ratio (PCR)	0.44	0.35	>	Super Javanese
Social Profitability (SP)	9,094.57	10,937.05	<	Super Javanese
Domestic Resource Cost Ratio (DRCR)	0.40	0.33	>	Super Javanese
Transfer Input (TI)	1,360.26	1,229.61	>	Super Javanese
Nominal Protection Coefficient on Tradable Input (NPCI)	1.08	1.07	>	Super Javanese
Factor Transfer (FT)	0	0	=	Equal
Transfer Output (TO)	0	0	=	Equal
Nominal Protection Coefficient on Tradable Output (NPCO)	1	1	=	Equal
Effective Protection Ceofficient (EPC)	0.91	0.92	<	Super Javanese
Profitability Ceofficient (PC)	0.85	0.89	<	Super Javanese
Net Transfer (NT)	-1,360.26	-1,229.61	<	Super Javanese
Subsidy Ratio to Product (SRP)	-0.04	-0.04	=	Equal

*) Live Weight/Bird = 0.8 kg

*) Period = 60 Days

Source: Primary and Secondary Data Proceed (2018)

CHAPTER V
CONCLUSIONS AND SUGGESTIONS

5.1. Conclusions

Conclusion from this research are:

1. The result of discussion by using PAM analysis showing the indigenous chicken commodity in Malang Regency have the value of competitive and comparative advantages and policy impact indicator.
2. The indigenous chicken commodity in Malang Regency shows the efficiency and profit activities that deserve to continue to run and have a good competitiveness in terms of competitive and comparative advantage.

5.2. Suggestions

Based on the conclusion of the research, it is suggests to :

1. Indigenous chicken farmer in Malang Regency can improve their profit and competitiveness by joining in active extension programs to improve farmers' capabilities, knowledge, and increase their product quality and quantity.
2. The indigenous chicken commodity in Malang Regency must have innovation and creativity to increase their product competitiveness in facing the future challenge. Such as; better management of housing system and feed management.

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